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SOIL EXCAVATION AND GROUNDWATER MONITORING WORK PLAN REVISION 2 FOR
TANK SITE 283 NS MAYPORT FL
7/1/2005
TETRA TECH NUS

**Soil Excavation and Groundwater
Monitoring Work Plan
Revision 2
for
Tank Site 283**

Naval Station Mayport
Mayport, Florida



**Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0230**

July 2005

**SOIL EXCAVATION AND GROUNDWATER MONITORING WORK PLAN
REVISION 2
FOR
TANK SITE 283**

**NAVAL STATION MAYPORT
MAYPORT, FLORIDA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION-NAVY (CLEAN) CONTRACT**

**Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406**

**Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

**CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0230**

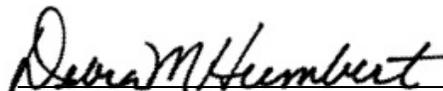
JULY 2005

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:



**MARK A. PETERSON, P.G.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
JACKSONVILLE, FLORIDA**



**DEBRA M. HUMBERT
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**



The professional opinions rendered in this decision document identified as Soil Excavation and Groundwater Monitoring Work Plan, Revision 2, for Tank Site 283, Naval Station Mayport, Mayport, Florida were developed in accordance with commonly accepted procedures consistent with applicable standards of practice. Decision documents were prepared under the supervision of the signing engineer and are based on information obtained from others. If conditions are determined to exist differently than those described in this document, then the undersigned professional engineer should be notified to evaluate the effects of any additional information on the project described in this document.

A handwritten signature in black ink, appearing to read "Gregory S. Roof", is written over a horizontal line.

July 8, 2005
Gregory S. Roof, P.E.
Professional Engineering Number 50842
Tetra Tech NUS, Inc. Engineering No. 7988

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ACRONYMS

bls	Below Land Surface
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FLUCL	Florida Upper Confidence Level
ft	Feet or Foot
GAG	Gasoline Analytical Group
HASP	Health and Safety Plan
KAG	Kerosene Analytical Group
mg/KG	Milligrams per Kilogram
NAVFAC EFD SOUTH	Southern Division, Naval Facilities Engineering Command
NAVSTA	Naval Station
Navy	United States Navy
NFA	No Further Action
PAHs	Polynuclear Aromatic Hydrocarbons
SAR	Site Assessment Report
SCTLs	Soil Cleanup Target Levels
SRR	Soil Removal Report
UCL	Upper Confidence Level
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION AND SITE INFORMATION

1.1 INTRODUCTION

This Soil Excavation and Groundwater Monitoring Work Plan provides historical information and select tasks the subcontractor should complete for the environmental closure of Tank Site 283 at Naval Station (NAVSTA) Mayport, in Mayport, Florida. The impacts affect only the soil. The area of interest is a grass and lime rock covered area used to store equipment and reels of heavy gauge electrical chords used to connect to nearby ships.

1.2 SITE INFORMATION

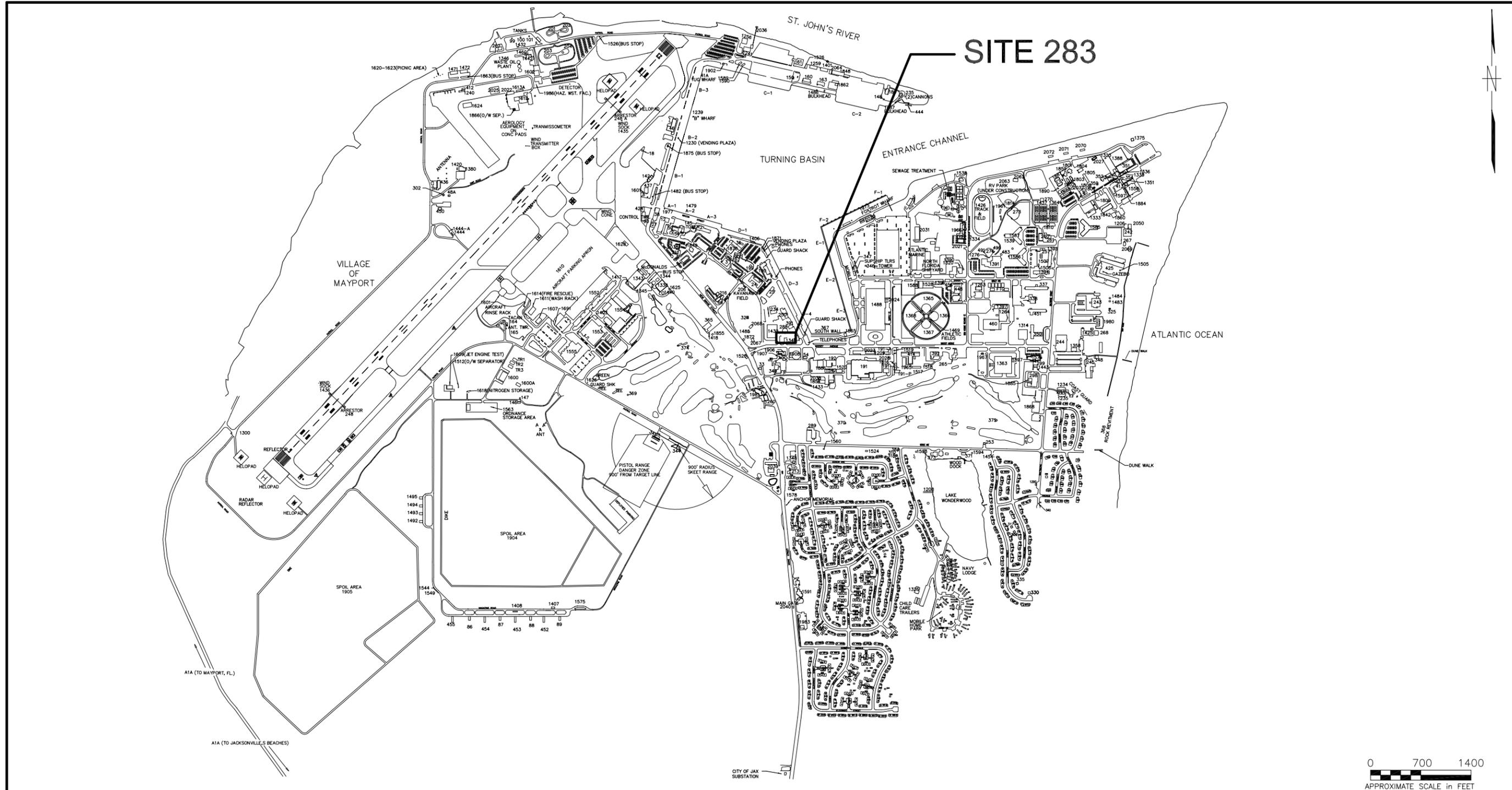
Tank Site 283 is located on NAVSTA Mayport property on the northern side of Massey Avenue approximately 350 feet (ft) to the west of the southern leg of the turning basin. A site location map is provided as Figure 1-1. Since December 1992, a fuel system and generator at Tank Site 283 were removed, but the large water tank (Tank Number 288) remains at the site. The site is located in an industrial/commercial area of the base. Structures in the vicinity of the former tank site include a municipal water tank and maintenance facility garage. The potable water tank is operational, and a main water line is located near the excavation area. A chain link fence encircles the entire grounds. South and east of the municipal water tank is the former location of Building 283. Building 283 was used to house the potable well pumps.

The site is unpaved. The site consists of a lime rock parking area and grass covered areas as shown on a Site Plan provided as Figure 1-2. Vehicles, heavy equipment, and electrical power connector cords for the ships are stored in the gravel parking and grassy areas.

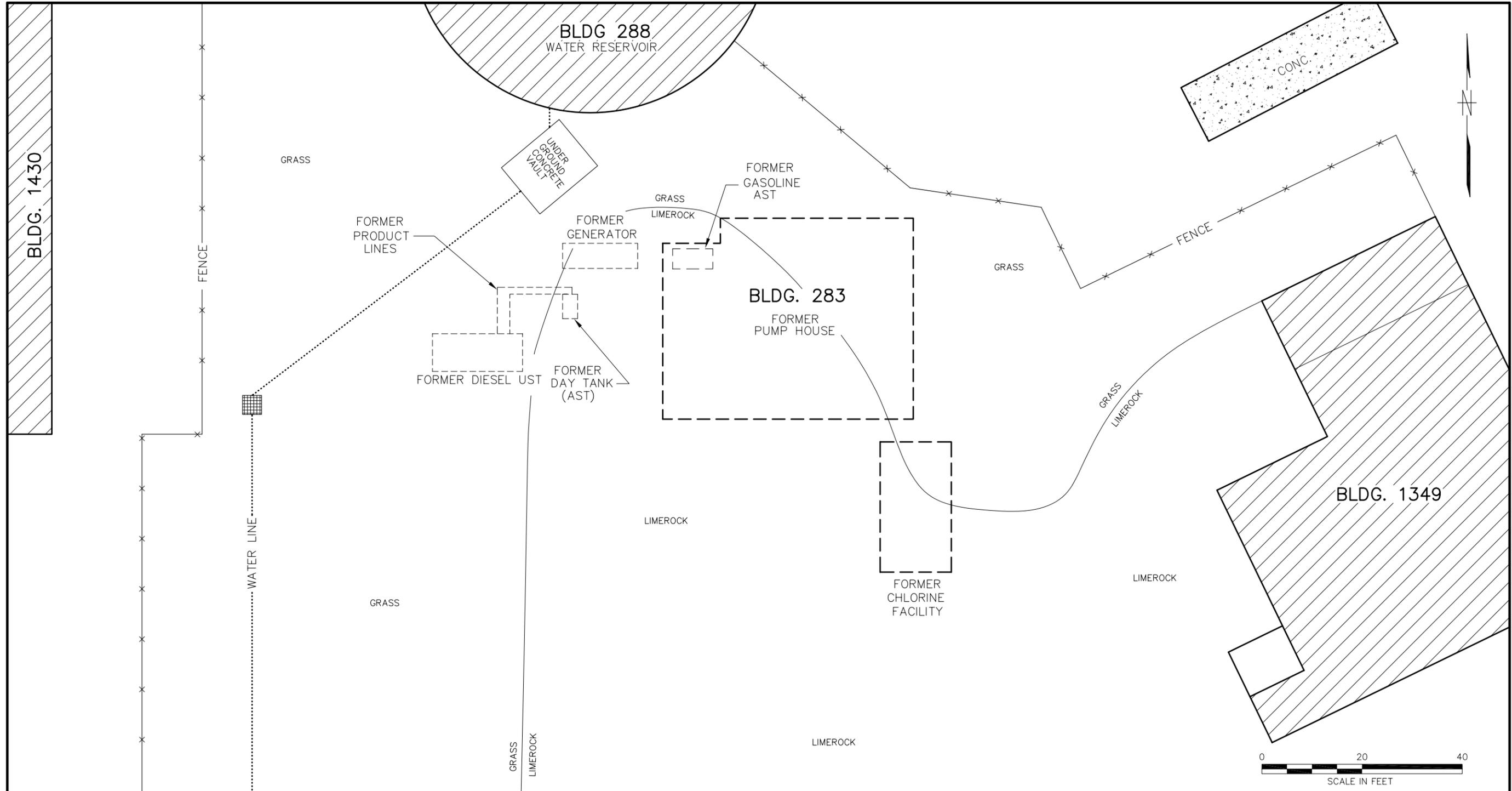
The site is easily accessible and will be able to accommodate all remedial actions to be carried out by the subcontractor. Communication between the contractor and Johnson Controls Hill will need to be maintained to ensure enough time is given to move any items in the area of excavation and to ensure that the operations of an on-site garage are not hindered.

1.3 PRE-EXCAVATION SOIL SAMPLING RESULTS

In accordance with the NAVSTA Mayport Partnering Team-approved closure strategy, Tetra Tech NUS, Inc. conducted additional soil sampling activities designed to narrow the scope of the planned soil removal and to obtain pre-approval of the excavation depths and limits. A copy of the February 13, 2004,



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE		SITE LOCATION MAP TANK SITE 283 SITE ASSESSMENT REPORT NAVAL STATION MAYPORT MAYPORT, FLORIDA		CONTRACT NO.
							LLK	10/17/02			4195	
							CHECKED BY	DATE			APPROVED BY	DATE
							COST/SCHED-AREA				APPROVED BY	DATE
							SCALE	AS NOTED		DRAWING NO.	REV.	
										FIGURE 1-1	0	



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK	DATE 4/27/04
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



SITE PLAN
TANK SITE 283
EXCAVATION PLAN
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 4195	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1-2	REV. 0

letter from the Florida Department of Environmental Protection (FDEP), which approved the Site Assessment Report (SAR) and requested remedial action, is provided as Appendix A. Soil sampling was conducted in a series of events between October 2002 and April 2005 from locations SB-10 through SB-62 and tested polynuclear aromatic hydrocarbons (PAHs) using United States Environmental Protection Agency (USEPA) Method 8310. The results of the soil analyses are presented in Table 1-1. Shaded values in Table 1-1 indicate values that exceed residential and/or leachability soil cleanup target levels (SCTLs). Bolded values in Table 1-1 exceed industrial/commercial SCTLs. Only PAH analyses were conducted since prior sampling, as documented in the SAR, had shown the lack of other gasoline analytical group (GAG)/kerosene analytical group (KAG) compounds. Soil samples were collected from 1 ft below land surface (bls) and/or 3 ft bls, which is just above the groundwater table. A copy of the soil analytical results is provided in Appendix B.

The locations and testing results are also presented on Figure 1-3 with comparison against SCTLs prior to April 2005. Green colored locations indicate results below residential criteria. Yellow colored locations indicate PAHs concentrations exceed residential but are less than industrial/commercial criteria. Red locations indicated PAH values in excess of industrial/commercial criteria.

Based on a NAVSTA Mayport Partnering Team decision, statistical analyses of the data were conducted using the Florida Upper Confidence Level (FLUCL) software. Results of the statistical analyses are provided in Appendix C. Based on this analysis, soils exceeding the 95% Upper Confidence Level (UCL) number were designated for removal as shown on Figures 1-3. The proposed excavation shown on Figure 1-3 removes all soils exceeding the 95% UCL. Due to the distribution of this data, the excavation also encompasses soil not exceeding the 95% UCL. Removal of soil in this area will allow closure of the site without the need for land use controls.

The proposed excavation limits would encompass the areas exceeding the 95% UCL. Per FDEP direction, excavation will continue until a sample location is encountered that is less than the 95% UCL. Excavation will include all soils within the area indicated at Figure 1-3 from the ground surface to the top of the water table encountered at 3 ft in depth. Excavation below the water table is not required. The excavation size is estimated at 1,500 square ft with an estimated volume of 167 cubic yards in place. Contractors should allow for volume expansion upon removal.

Table 1-2 provides surveyed coordinates for each of the soil sample locations outlining the excavation site. Prior to excavation, the contractor shall have a survey performed to mark the extent of the excavation based on the coordinates provided.

<p align="center">Table 1-1 Summary of Fixed-Base Laboratory Soil Sample Results Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida</p>											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-10	SB-13	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19
				7/10/2002 3ft	10/3/2002 3ft	10/3/2002 3ft	10/3/2002 3ft	10/3/2002 3ft	2/24/2003 3ft	2/24/2003 3ft	2/24/2003 3ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	<1.9	<2	<0.42	<0.4	<2.1	<0.0037	0.011	0.2
2-Methylnaphthalene	80	560	6.1	<1.9	<2	<0.42	<0.4	<2.1	<0.0037	0.01	0.19
1-Methylnaphthalene	68	470	2.2	<1.9	<2	<0.42	<0.4	<2.1	<0.0037	0.0077	0.14
Acenaphthylene	1100	11000	27	<3.8	<2	<0.84	<0.81	<4.2	<0.0037	<0.0037	<0.073
Acenaphthene	1900	18000	2.1	<3.8	<2	<0.84	<0.81	<4.2	<0.0037	0.034	0.84
Anthracene	18000	260000	2500	1.74	<2	0.285	<0.4	<2.1	<0.0037	0.051	1.4
Fluorene	2200	28000	160	<1.9	<2	0.304	<0.4	<2.1	<0.0037	0.032	0.84
Benzo(a)anthracene	1.4	5	3.2	3.49	3.99	0.918	<0.4	3.01	0.0037	0.11	2.4
Benzo(a)pyrene	0.1	0.5	8	3.37	2.34	0.626	<0.081	1.78	0.006	0.17	3.6
Benzo(b)fluoranthene	1.4	4.8	10	2.39	1.63	0.427	<0.081	1.22	0.0063	0.2	3.8
Benzo(g,h,i)perylene	2300	41000	32000	2.07	1.96	0.576	<0.081	1.32	0.001	0.19	2.7
Benzo(k)fluoranthene	15	52	25	1.67	1.36	0.354	<0.081	1.01	0.004	0.11	2.7
Chrysene	140	450	77	4.17	3.32	0.898	<0.4	2.73	0.004	0.14	3.1
Dibenzo(a,h)anthracene	0.1	0.5	30	0.854	0.408	0.111	<0.081	0.331	<0.0037	0.087	1.3
Fluoranthene	2900	48000	1200	13.2	9.8	2.37	<0.4	7.58	0.011	0.47	9.1
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	1.88	1.7	0.454	<0.081	1.21	<0.0037	0.18	2.4
Phenanthrene	2000	30000	250	11.5	8.36	1.87	<0.4	6.95	0.0071	0.34	8.0
Pyrene	2200	37000	880	8.31	5.67	1.54	<0.4	4.7	0.0085	0.33	6.4

See notes at end of table.

<p align="center">Table 1-1 (Continued) Summary of Fixed-Base Laboratory Soil Sample Results Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida</p>											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/ Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-20	SB-21	SB-22	SB-23	SB-24	SB-25	SB-26	SB-27
				2/24/2003 3ft							
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	<0.018	0.02	0.18	<0.0038	0.096	0.086	<0.036	<0.036
2-Methylnaphthalene	80	560	6.1	<0.018	0.02	0.14	<0.0038	0.096	0.071	<0.036	<0.036
1-Methylnaphthalene	68	470	2.2	<0.018	<0.018	0.088	<0.0038	0.080	<0.071	<0.036	<0.036
Acenaphthylene	1100	11000	27	<0.018	<0.018	<0.072	<0.0038	<0.073	<0.071	<0.036	<0.036
Acenaphthene	1900	18000	2.1	0.048	0.089	0.59	0.012	0.44	0.39	0.14	0.14
Anthracene	18000	260000	2500	0.096	0.17	0.77	0.019	0.82	0.86	0.32	0.31
Fluorene	2200	28000	160	0.048	0.094	0.66	0.01	0.40	0.43	0.14	0.15
Benzo(a)anthracene	1.4	5	3.2	0.19	0.23	1.4	0.049	1.30	1.00	0.48	0.47
Benzo(a)pyrene	0.1	0.5	8	0.32	0.33	1.9	0.076	2.00	1.40	0.67	0.68
Benzo(b)fluoranthene	1.4	4.8	10	0.4	0.36	2.6	0.095	2.70	1.70	0.82	0.98
Benzo(g,h,i)perylene	2300	41000	32000	0.3	0.3	1.6	0.091	1.70	1.30	0.66	0.59
Benzo(k)fluoranthene	15	52	25	0.26	0.33	1.4	0.06	1.80	1.00	0.62	0.40
Chrysene	140	450	77	0.27	0.31	1.8	0.064	1.80	1.20	0.59	0.58
Dibenzo(a,h)anthracene	0.1	0.5	30	0.12	0.13	0.72	0.037	0.73	0.45	0.25	0.22
Fluoranthene	2900	48000	1200	0.79	0.94	5.9	0.16	5.10	3.90	1.70	1.60
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	0.27	0.28	1.4	0.079	1.60	1.10	0.58	0.53
Phenanthrene	2000	30000	250	0.62	0.83	5.9	0.11	4.20	3.60	1.30	1.30
Pyrene	2200	37000	880	0.54	0.67	4.0	0.12	3.60	2.60	1.20	1.10

See notes at end of table.

Table 1-1 (Continued) Summary of Fixed-Base Laboratory Soil Sample Results											
Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/ Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-28	SB-28	SB-29	SB-30	SB-31	SB-32	SB-33	SB-34
				5/18/2003 1ft	2/24/2003 3ft	2/24/2003 3ft	2/24/2003 3ft	2/24/2003 3ft	2/24/2003 3ft	2/24/2003 3ft	5/15/2003 1ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	<0.0034	0.82	<0.018	<0.0038	0.26	<0.0036	<0.0039	<0.0035
2-Methylnaphthalene	80	560	6.1	<0.0034	0.76	<0.018	<0.0038	0.24	<0.0036	<0.0039	<0.0035
1-Methylnaphthalene	68	470	2.2	<0.0034	0.50	<0.018	<0.0038	<0.18	<0.0036	<0.0039	<0.0035
Acenaphthylene	1100	11000	27	<0.0034	<0.18	<0.018	<0.0038	<0.18	<0.0036	<0.0039	<0.0035
Acenaphthene	1900	18000	2.1	0.0076	2.60	0.09	0.01	1.00	0.0072	<0.0039	<0.0035
Anthracene	18000	260000	2500	0.018	4.30	0.17	0.02	2.00	0.013	<0.0039	<0.0035
Fluorene	2200	28000	160	0.0072	2.80	0.09	0.01	1.00	0.0068	<0.0039	<0.0035
Benzo(a)anthracene	1.4	5	3.2	0.07	6.00	0.23	0.04	2.90	0.038	<0.0039	<0.0035
Benzo(a)pyrene	0.1	0.5	8	0.067	8.70	0.32	0.06	3.80	0.061	<0.0039	0.0077
Benzo(b)fluoranthene	1.4	4.8	10	0.079	9.80	0.40	0.08	4.90	0.078	<0.0039	<0.0035
Benzo(g,h,i)perylene	2300	41000	32000	0.041	6.00	0.30	0.06	3.40	0.066	<0.0039	<0.0035
Benzo(k)fluoranthene	15	52	25	0.048	5.40	2.30	0.05	3.60	0.063	<0.0039	<0.0035
Chrysene	140	450	77	0.067	7.10	2.80	0.05	3.30	0.05	<0.0039	<0.0035
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.0034	3.00	0.06	0.02	1.40	0.027	<0.0039	<0.0035
Fluoranthene	2900	48000	1200	0.140	25.00	0.80	0.15	10.00	0.13	<0.0039	0.0038
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	0.038	6.00	0.27	0.01	3.10	0.059	<0.0039	<0.0035
Phenanthrene	2000	30000	250	0.079	22.00	0.69	0.12	8.90	0.087	<0.0039	<0.0035
Pyrene	2200	37000	860	0.100	17.00	0.53	0.10	7.20	0.098	<0.0039	0.0035
See notes at end of table.											

Table 1-1 (Continued) Summary of Fixed-Base Laboratory Soil Sample Results											
Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-34	SB-35	SB-35	SB-36	SB-36	SB-37	SB-37	SB-38
				5/15/2003	5/15/2003	5/15/2003	5/15/2003	5/15/2003	5/15/2003	5/15/2003	5/15/2003
				3ft	1ft	3ft	1ft	3ft	1ft	3ft	1ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	<0.0038	<0.0035	<0.0039	<0.0034	<0.0035	<0.0034	<0.0036	<0.0034
2-Methylnaphthalene	80	560	6.1	<0.0038	<0.0035	<0.0039	<0.0034	<0.0035	<0.0034	<0.0036	<0.0034
1-Methylnaphthalene	68	470	2.2	<0.0038	<0.0035	<0.0039	<0.0034	<0.0035	<0.0034	<0.0036	<0.0034
Acenaphthylene	1100	11000	27	<0.0038	<0.0035	<0.0039	<0.0034	<0.0035	0.0037	0.0036	<0.0034
Acenaphthene	1900	18000	2.1	<0.0038	<0.0035	<0.0039	<0.0034	<0.0035	<0.0034	<0.0036	<0.0034
Anthracene	18000	260000	2500	<0.0038	0.005	0.005	<0.0034	<0.0035	0.0067	0.0062	<0.0034
Fluorene	2200	28000	160	<0.0038	0.005	<0.0039	<0.0034	<0.0035	<0.0034	<0.0036	<0.0034
Benzo(a)anthracene	1.4	5	3.2	<0.0038	0.015	0.0093	<0.0034	<0.0035	0.021	0.015	<0.0034
Benzo(a)pyrene	0.1	0.5	8	<0.0038	0.026	0.016	0.0082	<0.0035	0.034	0.025	<0.0034
Benzo(b)fluoranthene	1.4	4.8	10	<0.0038	0.032	0.016	0.005	<0.0035	0.045	0.031	<0.0034
Benzo(g,h,i)perylene	2300	41000	32000	<0.0038	0.028	0.018	0.001	<0.0035	0.038	0.025	<0.0034
Benzo(k)fluoranthene	15	52	25	<0.0038	0.017	0.0093	<0.0034	<0.0035	0.026	0.021	<0.0034
Chrysene	140	450	77	<0.0038	0.017	0.0096	<0.0034	<0.0035	0.023	0.018	<0.0034
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.0038	<0.0035	<0.0039	<0.0034	<0.0035	<0.0034	<0.0036	<0.0034
Fluoranthene	2900	48000	1200	0.0041	0.027	0.019	0.0058	<0.0035	0.039	0.032	0.0034
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	<0.0038	0.026	0.016	0.0085	<0.0035	0.036	0.024	<0.0034
Phenanthrene	2000	30000	250	<0.0038	0.014	0.0089	<0.0034	<0.0035	0.017	0.015	<0.0034
Pyrene	2200	37000	860	<0.0038	0.020	0.014	0.0048	<0.0035	0.030	0.024	<0.0034

See notes at end of table.

Table 1-1 (Continued) Summary of Fixed-Base Laboratory Soil Sample Results											
Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/ Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-38	SB-39	SB-39	SB-40	SB-41	SB-42	SB-43	SB-44
				5/15/2003 3ft	5/15/2003 1ft	5/15/2003 3ft	1/14/2004 3ft	1/14/2004 3ft	1/14/2004 3ft	1/14/2004 3ft	3/22/2004 3ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	<0.0039	0.005	<0.0038	NA	NA	NA	NA	NA
2-Methylnaphthalene	80	560	6.1	<0.0039	0.005	<0.0038	NA	NA	NA	NA	NA
1-Methylnaphthalene	68	470	2.2	<0.0039	0.0037	<0.0038	NA	NA	NA	NA	NA
Acenaphthylene	1100	11000	27	<0.0039	0.004	0.0042	NA	NA	NA	NA	NA
Acenaphthene	1900	18000	2.1	<0.0039	0.0017	0.0014	NA	NA	NA	NA	NA
Anthracene	18000	260000	2500	<0.0039	0.026	0.03	NA	NA	NA	NA	NA
Fluorene	2200	28000	160	<0.0039	0.012	0.015	NA	NA	NA	NA	NA
Benzo(a)anthracene	1.4	5	3.2	<0.0039	0.099	0.085	0.95	1.6	9.8	<0.036	0.26
Benzo(a)pyrene	0.1	0.5	8	<0.0039	0.12	0.11	0.72	1.1	8	<0.036	0.2
Benzo(b)fluoranthene	1.4	4.8	10	<0.0039	0.2	0.14	0.86	1.2	10	<0.036	0.35
Benzo(g,h,i)perylene	2300	41000	32000	<0.0039	0.11	0.096	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	15	52	25	<0.0039	0.078	0.088	NA	NA	NA	NA	NA
Chrysene	140	450	77	<0.0039	0.11	0.098	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.0039	<0.0034	<0.0038	0.26	0.12	2.2	<0.036	<0.036
Fluoranthene	2900	48000	1200	<0.0039	0.22	0.21	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1.5	5.3	23	<0.0039	0.11	0.088	0.74	1.1	5.4	<0.036	0.087
Phenanthrene	2000	30000	250	<0.0039	0.18	0.17	NA	NA	NA	NA	NA
Pyrene	2200	37000	880	<0.0039	0.16	0.14	NA	NA	NA	NA	NA
See notes at end of table.											

Table 1-1 (Continued)											
Summary of Fixed-Base Laboratory Soil Sample Results											
Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283											
Naval Station Mayport											
Mayport, Florida											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-45	SB-46	SB-47	SB-48	SB-49	SB-50	SB-50	SB-51
				3/22/2004	3/22/2004	3/22/2004	3/22/2004	3/22/2004	9/24/2004	9/24/2004	9/24/2004
				3ft	3ft	3ft	3ft	3ft	1ft	3ft	1ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	80	560	6.1	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	68	470	2.2	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	1100	11000	27	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1900	18000	2.1	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	18000	260000	2500	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	2200	28000	160	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1.4	5	3.2	0.091	<0.035	<0.036	<0.035	0.54	0.056	6.70	0.056
Benzo(a)pyrene	0.1	0.5	8	0.049	<0.035	<0.036	<0.035	0.5	0.049	3.70	0.039
Benzo(b)fluoranthene	1.4	4.8	10	0.1	<0.035	<0.036	<0.035	0.85	0.077	7.60	0.063
Benzo(g,h,i)perylene	2300	41000	32000	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	15	52	25	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	140	450	77	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.038	<0.035	<0.036	<0.035	0.1	<0.035	0.77	<0.035
Fluoranthene	2900	48000	1200	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	<0.038	<0.035	<0.036	<0.035	0.29	0.035	1.90	<0.035
Phenanthrene	2000	30000	250	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	2200	37000	880	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

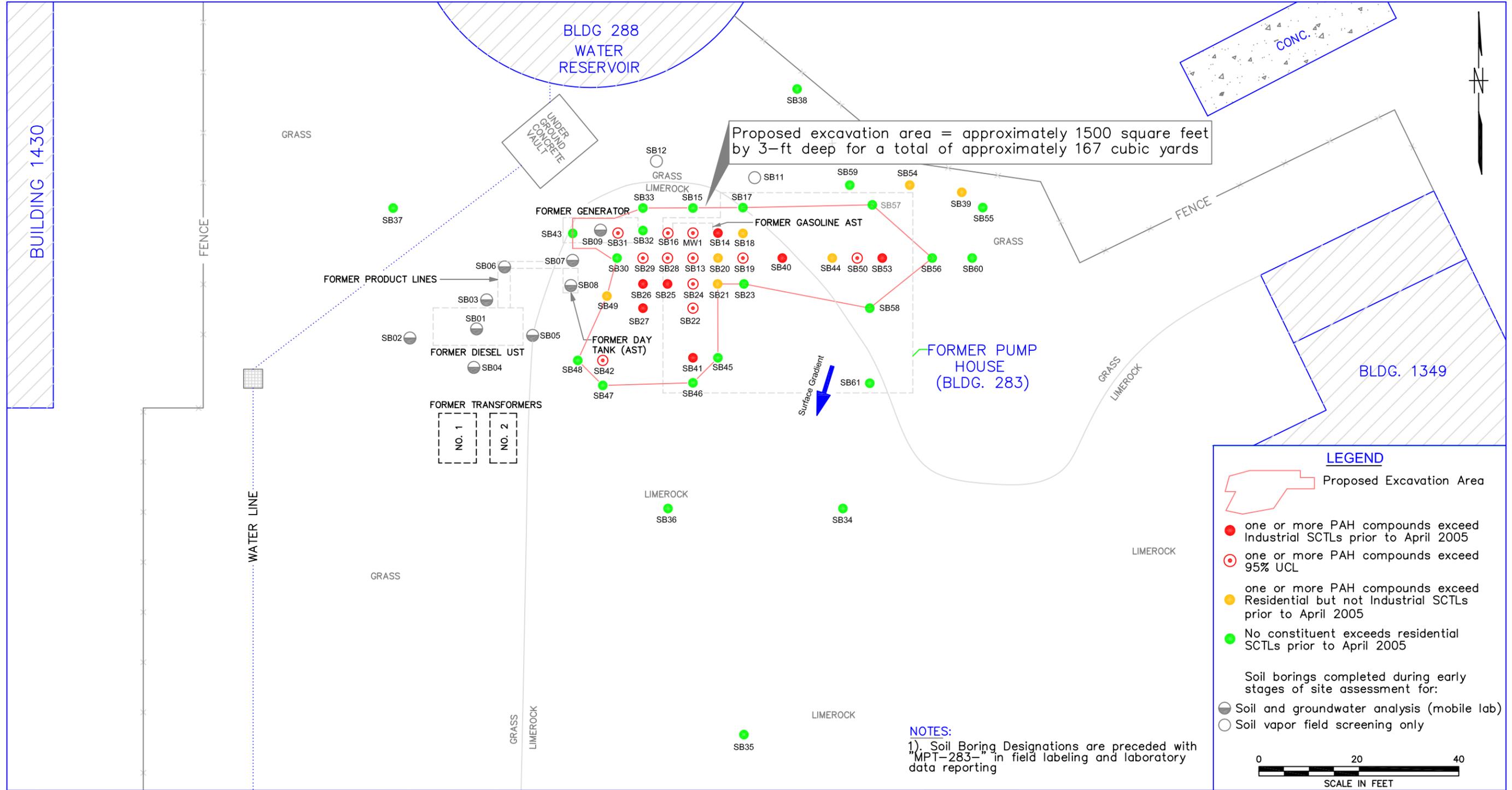
<p align="center">Table 1-1 (Continued) Summary of Fixed-Base Laboratory Soil Sample Results Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida</p>											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-51	SB-52	SB-52	SB-53	SB-53	SB-54	SB-54	SB-55
				9/24/2004	9/24/2004	9/24/2004	9/24/2004	9/24/2004	2/10/2004	2/10/2004	2/10/2004
				3ft	1ft	3ft	1ft	3ft	1ft	3ft	1ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	NA	NA	NA	NA	NA	<0.035	<0.036	<0.034
2-Methylnaphthalene	80	560	6.1	NA	NA	NA	NA	NA	<0.035	<0.036	<0.034
1-Methylnaphthalene	68	470	2.2	NA	NA	NA	NA	NA	<0.035	<0.036	<0.034
Acenaphthylene	1100	11000	27	NA	NA	NA	NA	NA	<0.035	<0.036	<0.034
Acenaphthene	1900	18000	2.1	NA	NA	NA	NA	NA	<0.035	<0.036	<0.034
Anthracene	18000	260000	2500	NA	NA	NA	NA	NA	<0.035	0.041	<0.034
Fluorene	2200	28000	160	NA	NA	NA	NA	NA	<0.035	<0.036	<0.034
Benzo(a)anthracene	1.4	5	3.2	0.11	NS	NS	0.036	0.84	<0.035	0.23	<0.034
Benzo(a)pyrene	0.1	0.5	8	0.072	NS	NS	0.036	0.64	<0.035	0.20	<0.034
Benzo(b)fluoranthene	1.4	4.8	10	0.11	NS	NS	0.036	0.94	<0.035	0.32	<0.034
Benzo(g,h,i)perylene	2300	41000	32000	NA	NA	NA	NA	NA	<0.045	0.16	<0.034
Benzo(k)fluoranthene	15	52	25	NA	NA	NA	NA	NA	<0.035	0.089	<0.034
Chrysene	140	450	77	NA	NA	NA	NA	NA	0.063	0.3	<0.034
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.038	NS	NS	0.036	0.12	<0.035	<0.036	<0.034
Fluoranthene	2900	48000	1200	NA	NA	NA	NA	NA	0.13	0.68	0.039
Indeno(1,2,3-cd)pyrene	1.5	5.3	23	<0.038	NS	NS	0.036	0.33	<0.035	0.12	<0.034
Phenanthrene	2000	30000	250	NA	NA	NA	NA	NA	0.077	0.45	<0.034
Pyrene	2200	37000	880	NA	NA	NA	NA	NA	0.09	0.48	<0.034

See notes at end of table.

Table 1-1 (Continued)											
Summary of Fixed-Base Laboratory Soil Sample Results											
Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida											
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-55	SB-56	SB-56	SB-57	SB-57	SB-58	SB-58	SB-59
				2/10/2004	2/10/2004	2/10/2004	2/10/2004	2/10/2004	2/10/2004	2/10/2004	
				3ft	1ft	3ft	1ft	3ft	1ft	3ft	1ft
PAHs (USEPA Method 8310) (mg/kg)											
Naphthalene	40	270	1.7	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
2-Methylnaphthalene	80	560	6.1	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
1-Methylnaphthalene	66	470	2.2	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Acenaphthylene	1100	11000	27	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Acenaphthene	1900	18000	2.1	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Anthracene	18000	260000	2500	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Fluorene	2200	28000	160	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Benzo(a)anthracene	1.4	5	3.2	<0.035	<0.035	0.076	0.041	<0.035	<0.038	<0.037	<0.052
Benzo(a)pyrene	0.1	0.5	8	<0.035	<0.035	0.057	0.037	<0.035	<0.038	<0.037	<0.052
Benzo(b)fluoranthene	1.4	4.8	10	<0.035	<0.035	0.09	0.059	<0.035	<0.038	<0.037	<0.052
Benzo(g,h,i)perylene	2300	41000	32000	<0.035	<0.035	0.051	0.048	<0.035	<0.038	<0.037	<0.052
Benzo(k)fluoranthene	15	52	25	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Chrysene	140	450	77	<0.035	<0.035	0.082	0.052	<0.035	<0.038	<0.037	<0.052
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.035	<0.035	<0.036	<0.037	<0.035	<0.038	<0.037	<0.052
Fluoranthene	2900	48000	1200	0.045	<0.035	0.18	0.082	<0.035	<0.038	<0.037	<0.052
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	<0.035	<0.035	0.043	0.037	<0.035	<0.038	<0.037	<0.052
Phenanthrene	2000	30000	250	0.035	<0.035	0.13	0.045	<0.035	<0.038	<0.037	<0.052
Pyrene	2200	37000	860	<0.035	<0.035	0.1	0.064	<0.035	<0.038	<0.037	<0.052

See notes at end of table.

<p align="center">Table 1-1 (Continued) Summary of Fixed-Base Laboratory Soil Sample Results Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283 Naval Station Mayport Mayport, Florida</p>										
Compound	Direct Exposure Residential ¹ (mg/kg)	Commercial/Industrial (mg/kg)	Leachability Based Criteria ¹ (mg/kg)	SB-59	SB-60	SB-60	SB-61	SB-61	SB-62	SB-62
				2/10/2004	2/10/2004	2/10/2004	2/10/2004	2/10/2004	4/1/2005	4/1/2005
				3ft	1ft	3ft	1ft	3ft	1ft	3ft
PAHs (USEPA Method 8310) (mg/kg)										
Naphthalene	4C	270	1.7	<0.051	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	8C	560	6.1	<0.051	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	6E	470	2.2	<0.051	NA	NA	NA	NA	NA	NA
Acenaphthylene	11C0	11000	27	<0.051	NA	NA	NA	NA	NA	NA
Acenaphthene	19C0	18000	2.1	<0.051	NA	NA	NA	NA	NA	NA
Anthracene	18000	260000	2500	<0.051	NA	NA	NA	NA	NA	NA
Fluorene	22C0	28000	160	<0.051	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1.4	5	3.2	<0.051	NA	NA	NA	NA	<0.036	<0.042
Benzo(a)pyrene	0.1	0.5	8	<0.051	NA	NA	NA	NA	<0.036	<0.042
Benzo(b)fluoranthene	1.4	4.8	10	<0.051	NA	NA	NA	NA	0.046	<0.042
Benzo(g,h,i)perylene	23C0	41000	32000	<0.051	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1E	52	25	<0.051	NA	NA	NA	NA	NA	NA
Chrysene	140	450	77	<0.051	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	0.5	30	<0.051	NA	NA	NA	NA	<0.036	<0.042
Fluoranthene	29C0	48000	1200	<0.051	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	<0.051	NA	NA	NA	NA	0.11	<0.042
Phenanthrene	20C0	30000	250	<0.051	NA	NA	NA	NA	NA	NA
Pyrene	22C0	37000	880	<0.051	NA	NA	NA	NA	NA	NA
Notes:										
¹ Chapter 62-770, Florida Administrative Code (FAC) (April 30, 1999)										
The quality control for this data has only been checked by the laboratory.										
NA = not analyzed										
Shaded = exceeds residential and/or leachability SCTLs										
Bold = exceeds industrial/commercial SCTLs										
All samples collected from 1ft or 3ft bls.										
mg/kg = milligrams per kilogram										



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK	DATE 4/27/04
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



PROPOSED EXCAVATION AREA
 TANK SITE 283
 SOIL CHARACTERIZATION AND EXCAVATION
 MONITORING PLAN
 NAVAL STATION MAYPORT
 MAYPORT, FLORIDA

CONTRACT NO. 4195	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1-3	REV. 0

Table 1-2
Soil Sample Locations Surveyed Coordinates

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

SOIL BORING	NORTHING	EASTING	LATITUDE	LONGITUDE
SB15	2201374.0114	526655.2395	30°23'17.82"	81°24'38.73"
SB17	2201374.3604	526665.2148	30°23'17.83"	81°24'38.61"
SB21	2201355.6171	526661.2775	30°23'17.64"	81°24'38.66"
SB23	2201356.6233	526672.2816	30°23'17.65"	81°24'38.53"
SB30	2201360.1627	526641.6535	30°23'17.68"	81°24'38.88"
SB33	2201373.0867	526645.6999	30°23'17.81"	81°24'38.84"
SB43	2201367.7122	526630.2266	30°23'17.76"	81°24'39.01"
SB45	2201342.3672	526663.0333	30°23'17.51"	81°24'38.64"
SB46	2201337.1217	526657.7729	30°23'17.46"	81°24'38.70"
SB47	2201336.1697	526640.2309	30°23'17.45"	81°24'38.90"
SB48	2201341.2623	526634.3516	30°23'17.50"	81°24'38.97"
SB49	2201351.4126	526638.3312	30°23'17.60"	81°24'38.92"
SB56	2201355.986	526699.8622	30°23'17.66"	81°24'38.48"
SB57	2201374.28	526689.6095	30°23'17.82"	81°24'38.54"
SB58	2201352.586	526688.721	30°23'17.61"	81°24'38.52"

2.0 SOIL REMOVAL AND GROUNDWATER MONITORING PLAN

The objective of the soil and groundwater monitoring effort is to obtain site closure and entry of the site into NAVSTA Mayport's Land Use Control Implementation Plan. In order to achieve this objective, the following work tasks shall be implemented.

1. Pre-excavation Activities
2. Excavation
3. Backfill/Restoration
4. Soil Disposal
5. Documentation and Monitoring

The contractor shall be responsible for maintaining the work schedule agreed to by the United States Navy (Navy) and all documents required by the FDEP associated with this project. All personnel working on the base are required to abide by rules established by NAVSTA Mayport authorities. More detailed description of the above tasks and responsibilities of the contractor are presented below.

2.1 PRE-EXCAVATION ACTIVITIES

Prior to the excavation the following information, reports, and communications shall be completed by the subcontractor:

- The contractor shall oversee all aspects of work-site health and safety throughout the project. A Health and Safety Plan (HASP) documenting all site operations conducted at NAVSTA Mayport, Mayport, Florida shall be kept on site at all times. The HASP must comply with requirements stipulated in the Occupational Safety and Health Administration Standard 29 Code of Federal Regulations 1910.120. The site-specific HASP must be approved by the following Southern Division, Naval Facilities Engineering Command (NAVFAC EFD SOUTH) and the NAVSTA Mayport Environmental Department personnel and submitted no later than 30 days prior to beginning work.

Ms. Beverly Washington
NAVFAC EFD SOUTH
PO Box 190010
North Charleston, SC 29419-9010

Mr. Scott Dombrosky
Navy Public Works Center
Naval Air Station Jacksonville
Building 902, Box 30: Code320
NAS Jacksonville, FL 32212-0030

- An active garage maintained by Johnson Controls Hill is located on site. It is the contractor's responsibility to notify Johnson Controls Hill (phone number 904-270-6870) two weeks in advance of the beginning of the excavation work. It is common practice that Johnson Controls Hill stores material or equipment in the area of the excavation. It is also the contractor's responsibility to communicate with Johnson Controls Hill to remove all stored materials to a safe distance from the excavation site. The Johnson Controls Hill contact name(s) and time(s) of the conversation should be documented by the subcontractor. If Johnson Controls Hill is not notified, the work to be performed by the subcontractor may be slowed or stopped do to operations ongoing at the garage.
- Survey coordinates have been provided in this Soil Excavation and Groundwater Monitoring Work Plan. The contractor shall conduct a site survey to identify and flag the surveyed coordinates that designated the limits of the excavation.
- Prior to beginning the excavation, the contractor shall obtain a Dig Permit from the Public Works Engineering Division located at Building 1966. This permit process should be initiated no later than three weeks prior to beginning work. The dig permit requires the signatures of multiple personnel and multiple parties. Once the permit is obtained, it is required to remain on site throughout the project. A water main is known to be located along the western side of the property that connects NAVSTA Mayport with the potable water from the storage tank. If utilities are found during excavation activities, hand digging shall be used to remove soils within 3 ft of the located utility. No active utilities are anticipated to be within the excavation area.
- The contractor shall provide written documentation detailing which waste disposal facility and any subcontractors to be used. The soil will be taken to a licensed disposal facility.

2.2 EXCAVATION AND GROUNDWATER MONITORING ACTIVITIES

The contractor shall adhere to all excavation procedures including site control, posting of signs and cones, etc. according to the HASP. Tasks not addressed in the contractor's HASP must be pre-approved by the Mayport Environmental Department. The extent of the excavation has been defined using surveyed coordinates. A copy of the coordinates documenting the sample boring locations is presented in Table 1-2.

- The contractor shall be responsible for maintaining the schedule and documentation of all activities including the excavation. A daily log should include, but is not limited to, work performed, subcontractors, personnel, equipment, site conditions, and all health and safety related matters. Copies of the daily activities log shall be provided to the Navy upon completion of the project.
- One shallow monitoring well is located in the excavation pit. This well should remain intact during the excavation. The well is 13.5 ft deep and completed with 10 ft of screen. If the well is damaged, the subcontractor shall contact the Environmental Department at NAVSTA Mayport, and construction details for the well are provided in Appendix D. The installation of the replacement well shall be provided by the subcontractor at no cost to the Navy.
- No dewatering shall be required. Excavation is above the groundwater level.
- The excavated soils may be stockpiled and covered with heavy-duty polyethylene sheeting at the site. This shall be done in a manner to avoid the potential for contaminating surrounding soil of surface water. Alternately, soil may be stockpiled in properly lined and covered roll-off containers or drums or directly loaded onto trucks for transportation to the approved disposal facility.
- After excavation activities are complete, the contractor shall sample groundwater from monitoring well MPT-283-MW01 for the GAG/KAG analytical group as outlined in Chapter 62-770, FAC. The first event should be conducted immediately after construction/backfilling. This event will be considered the first of four quarterly sampling events. The contractor shall be responsible for subsequent sampling events conducted once per quarter until four events are completed or until two consecutive events indicate non-detect results.

2.3 BACKFILL/SITE RESTORATION

The site shall be backfilled with comparable material as was removed. The backfill shall be void of vegetation and manmade materials. If such materials are found to be in the backfill, the undesirable backfill will be removed and replaced at the subcontractor's expense. All fill material used should be obtained from an uncontaminated source. The materials shall be certified as clean or tested by the excavation contractor to ensure the material is suitable for use as backfill prior to being brought onto the site. The soil shall be tamped or tracked in with equipment to assist with compaction. The original lime rock used to cover the site can be saved for reuse. A minimum of 6 inches of lime rock is required to cover the excavation area. Compaction shall be completed with a sheep's foot or similar device.

2.4 DISPOSAL

The soils will be properly disposed of according to waste characterization activities. A disposal analysis has been collected for total recoverable petroleum hydrocarbons using the Florida Petroleum Range Organics Method, PAHs using USEPA Method 8270, volatile organic aromatics using USEPA Method 8260, and metals (arsenic, cadmium, chromium, and lead) using USEPA Method 6010. Copies of the disposal sample analytical results can be provided upon request. The soil is classified as non-hazardous. The impacted soil must not remain on site longer than two days after its excavation and will be manifested for disposal at a licensed facility. The subcontractor shall have personnel from the Environmental Department at NAVSTA Mayport sign the manifests as the generator.

2.5 DOCUMENTATION

Once the excavation is complete, the subcontractor shall prepare a Source Removal Report (SRR) documenting all remedial action activities including the first round of groundwater monitoring. The SRR shall contain all elements required by the FDEP to obtain site closure including date, time, description of work completed, photographs, figures, tables, analytical results, soil disposal manifests, and clean fill certification. The SRR shall also indicate the land use controls to be implemented at the site. The SRR shall be submitted to Ms. Adrienne Wilson, NAVFAC EFD SOUTH, and Mr. Scott Dombrosky, Navy Public Works Center Jacksonville, in draft form for approval. After Navy approval is obtained, the SRR shall be issued to the FDEP for regulatory approval.

After each subsequent quarterly monitoring event, the contractor shall prepare a brief letter report documenting the results from the well sampling event. The report shall be submitted to the Navy in draft form and, following Navy approval, the report will be issued to the FDEP. If no constituents are detected after the third and fourth quarter monitoring events, the contractor shall recommend no further action (NFA) and obtain FDEP concurrence prior to the next monitoring event. If constituents are detected, but remain below groundwater cleanup target levels, the contractor will recommend NFA. The four quarters of monitoring will begin once the FDEP has approved the monitoring plan in the Closure Report. A Monitoring Only Plan shall be sealed by a registered Professional Geologist or Professional Engineer.

APPENDIX A
FDEP SAR APPROVAL LETTER



JEQ BUSH
Governor

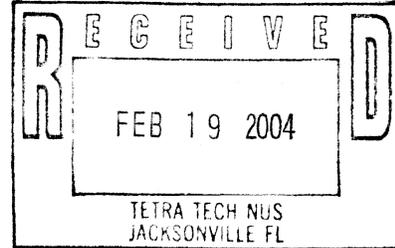
Department of Environmental Protection

DN4195:2.1:03

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

February 13, 2004



Ms. Beverly Washington
Department of the Navy, Petroleum Program
Southern Division - Naval Facilities Engineering Command
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

file: 283SAR1203.doc

RE: Site Assessment Report for Tank Site 283; Naval Station Mayport, Mayport, FL

Dear Ms. Washington:

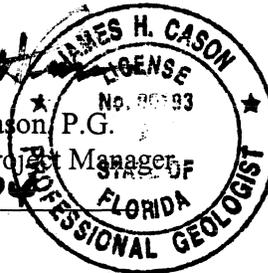
I have reviewed the above document dated December 2003 (received December 19, 2003). Information furnished in the document confirms that the requirements of Chapter 62-600, F.A.C. have been met. Please prepare a Remedial Action Plan for the contaminated soil at the site.

If further clarification is required or if you have any questions, please contact me at 850-245-8999.

Sincerely,

James H. Cason
James H. Cason, P.G.
Remedial Project Manager

2-13-04
date



cc: Mark Peterson, Tetra Tech NUS, Tallahassee
Diane Lancaster, NAVSTA Mayport

JJC *JJC* ESN *ESN*

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

*Correspondence
CJD 230*

APPENDIX B
ANALYTICAL DATA

Sample Summary

Tetra Tech, NUS

Job No: F13797

NAS Mayport-CTO230

Project No: N4195-P2293(SD), Tank 283

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F13797-1	07/10/02	08:15 MD	07/11/02	SO	Soil	MPT-283-SB10-03

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Report of Analysis

Client Sample ID:	MPT-283-SB10-03	Date Sampled:	07/10/02
Lab Sample ID:	F13797-1	Date Received:	07/11/02
Matrix:	SO - Soil	Percent Solids:	87.4
Method:	SW846 8260B		
Project:	NAS Mayport-CTO230		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0017164.D	1	07/18/02	KW	n/a	n/a	VG558
Run #2							

Run #	Initial Weight
Run #1	4.93 g
Run #2	

Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	5.8	ug/kg	
108-88-3	Toluene	ND	5.8	ug/kg	
100-41-4	Ethylbenzene	ND	5.8	ug/kg	
1330-20-7	Xylene (total)	ND	17	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-125%
2037-26-5	Toluene-D8	102%		75-125%
460-00-4	4-Bromofluorobenzene	113%		72-137%
17060-07-0	1,2-Dichloroethane-D4	116%		68-125%

ND = Not detected
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MPT-283-SB10-03	Date Sampled:	07/10/02
Lab Sample ID:	F13797-1	Date Received:	07/11/02
Matrix:	SO - Soil	Percent Solids:	87.4
Method:	EPA 8310 SW846 3550B		
Project:	NAS Mayport-CTO230		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AA011338.D	5	07/18/02	MRE	07/16/02	OP5492	CAA526
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	3800	ug/kg	
208-96-8	Acenaphthylene	ND	3800	ug/kg	
120-12-7	Anthracene	1740	1900	ug/kg	J
56-55-3	Benzo(a)anthracene	3400	1900	ug/kg	
50-32-8	Benzo(a)pyrene	3370	380	ug/kg	
205-99-2	Benzo(b)fluoranthene	2390	380	ug/kg	
191-24-2	Benzo(g,h,i)perylene	2070	380	ug/kg	
207-08-9	Benzo(k)fluoranthene	1670	380	ug/kg	
218-01-9	Chrysene	4170	1900	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	854	380	ug/kg	
206-44-0	Fluoranthene	13200	1900	ug/kg	
86-73-7	Fluorene	ND	1900	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1880	380	ug/kg	
91-20-3	Naphthalene	ND	1900	ug/kg	
90-12-0	1-Methylnaphthalene	ND	1900	ug/kg	
91-57-6	2-Methylnaphthalene	ND	1900	ug/kg	
85-01-8	Phenanthrene	11500	1900	ug/kg	
129-00-0	Pyrene	8310	1900	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		37-158%
92-94-4	p-Terphenyl	151% ^b		59-149%

(a) All hits confirmed by spectral match using a diode array detector.

(b) Outside control limits due to matrix interference.

ND = Not detected
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MPT-283-SB10-03	Date Sampled: 07/10/02
Lab Sample ID: F13797-1	Date Received: 07/11/02
Matrix: SO - Soil	Percent Solids: 87.4
Method: FLORIDA-PRO SW846 3550B	
Project: NAS Mayport-CTO230	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22270.D	1	07/23/02	SKW	07/22/02	OP5525	GOP809
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	56.9	9.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	96%		66-130%

ND = Not detected
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

MEMO TO: M. PETERSON
DATE: 11/13/02 – PAGE 2

ADDITIONAL COMMENTS

Positive results < Reporting Limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance: Initial calibration criteria was not met for anthracene.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."


Seth C. Staffen

Environmental Scientist/Data Validator
Tetra Tech NUS


Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $< CRQL$ for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4195

SDG: F14900 MEDIA: SOIL DATA FRACTION: PAH

nsample MPT-283-SB-13-SO-3
 samp_date 10/3/2002
 lab_id F14900-1
 qc_type NM
 units UG/KG
 Pct_Solids 85.3
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	3990		
BENZO(A)PYRENE	2340		
BENZO(B)FLUORANTHENE	1630		
DIBENZO(A,H)ANTHRACENE	408		
INDENO(1,2,3-CD)PYRENE	1700		

nsample MPT-283-SB-14-SO-3
 samp_date 10/3/2002
 lab_id F14900-2
 qc_type NM
 units UG/KG
 Pct_Solids 80.4
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	918		
BENZO(A)PYRENE	626		
BENZO(B)FLUORANTHENE	427		
DIBENZO(A,H)ANTHRACENE	111		
INDENO(1,2,3-CD)PYRENE	454		

nsample MPT-283-SB-15-SO-3
 samp_date 10/3/2002
 lab_id F14900-3
 qc_type NM
 units UG/KG
 Pct_Solids 84.4
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	400	U	
BENZO(A)PYRENE	81	U	
BENZO(B)FLUORANTHENE	81	U	
DIBENZO(A,H)ANTHRACENE	81	U	
INDENO(1,2,3-CD)PYRENE	81	U	

PROJ_NO: 4195

SDG: F14900 MEDIA: SOIL DATA FRACTION: PAH

nsample MPT-283-SB-16-SO-3
samp_date 10/3/2002
lab_id F14900-4
qc_type NM
units UG/KG
Pct_Solids 81.3
DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	3010		
BENZO(A)PYRENE	1780		
BENZO(B)FLUORANTHENE	1220		
DIBENZO(A,H)ANTHRACENE	331	J	P
INDENO(1,2,3-CD)PYRENE	1210		

PROJ_NO: 4195

SDG: F14900 MEDIA: WATER DATA FRACTION: PAH

nsample MPT-283-EQ BLK
samp_date 10/3/2002
lab_id F14900-5
qc_type NM
units UG/L
Pct_Solids 0
DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	0.21	U	
BENZO(A)PYRENE	0.21	U	
BENZO(B)FLUORANTHENE	0.21	U	
DIBENZO(A,H)ANTHRACENE	0.21	U	
INDENO(1,2,3-CD)PYRENE	0.21	U	

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RESULTS OF ANALYSIS

EPA METHOD 8270 - PAH Compounds by SIM	MPT-283-SB-17	MPT-283-SB-18	Units
Naphthalene	3.7 U	11	ug/Kg
2-Methylnaphthalene	3.7 U	10	ug/Kg
1-Methylnaphthalene	3.7 U	7.7	ug/Kg
Acenaphthylene	3.7 U	3.7 U	ug/Kg
Acenaphthene	3.7 U	34	ug/Kg
Fluorene	3.7 U	32	ug/Kg
Phenanthrene	7.1	340	ug/Kg
Anthracene	3.7 U	51	ug/Kg
Fluoranthene	11	470	ug/Kg
Pyrene	8.5	330	ug/Kg
Chrysene	4.0	140	ug/Kg
Benzo(a)anthracene	3.7	110	ug/Kg
Benzo(b)fluoranthene	6.3	200	ug/Kg
Benzo(k)fluoranthene	4.0	110	ug/Kg
Benzo(a)pyrene	6.0	170	ug/Kg
Indeno(1,2,3-cd)pyrene	3.7 U	180	ug/Kg
Dibenzo(a,h)anthracene	3.7 U	87	ug/Kg
Benzo(g,h,i)perylene	10	190	ug/Kg
Surrogate:	% RECOV	% RECOV	LIMITS
p-Terphenyl	54	65	19-162
Date Prepared	02/26/03	02/26/03	
Date Analyzed	03/04/03 10:52	03/04/03 11:13	

MISCELLANEOUS	METHOD	MPT-283-SB-17	MPT-283-SB-18	Units
Percent Solids	SM2540G	89	90	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

U = Compound was analyzed for but not detected to the level shown.

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RESULTS OF ANALYSIS

EPA METHOD 8270 - PAH Compounds by SIM	MPT-283-SB-19		MPT-283-SB-20		Units
Naphthalene	200	D1	18 U	D2	ug/Kg
2-Methylnaphthalene	190	D1	18 U	D2	ug/Kg
1-Methylnaphthalene	140	D1	18 U	D2	ug/Kg
Acenaphthylene	73 U	D1	18 U	D2	ug/Kg
Acenaphthene	840	D1	48	D2	ug/Kg
Fluorene	840	D1	48	D2	ug/Kg
Phenanthrene	8000	D1	620	D2	ug/Kg
Anthracene	1400	D1	96	D2	ug/Kg
Fluoranthene	9100	D1	790	D2	ug/Kg
Pyrene	6400	D1	540	D2	ug/Kg
Chrysene	3100	D1	270	D2	ug/Kg
Benzo (a) anthracene	2400	D1	190	D2	ug/Kg
Benzo (b) fluoranthene	3800	D1	400	D2	ug/Kg
Benzo (k) fluoranthene	2700	D1	260	D2	ug/Kg
Benzo (a) pyrene	3600	D1	320	D2	ug/Kg
Indeno (1, 2, 3-cd) pyrene	2400	D1	270	D2	ug/Kg
Dibenzo (a, h) anthracene	1300	D1	120	D2	ug/Kg
Benzo (g, h, i) perylene	2700	D1	300	D2	ug/Kg
Surrogate:	% RECOV		% RECOV		LIMITS
p-Terphenyl	*		*		19-162
Date Prepared	02/26/03		02/26/03		
Date Analyzed	03/04/03 18:14		03/04/03 18:36		

MISCELLANEOUS	METHOD	MPT-283-SB-19	MPT-283-SB-20	Units
Percent Solids	SM2540G	90	89	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D1 = Analyte value determined from a 1:20 dilution.
 D2 = Analyte value determined from a 1:5 dilution.

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RESULTS OF ANALYSIS

EPA METHOD 8270 - PAH Compounds by SIM	MPT-283-SB-21		MPT-283-SB-22		Units
Naphthalene	20	D2	180	D1	ug/Kg
2-Methylnaphthalene	20	D2	140	D1	ug/Kg
1-Methylnaphthalene	18 U	D2	88	D1	ug/Kg
Acenaphthylene	18 U	D2	72 U	D1	ug/Kg
Acenaphthene	89	D2	590	D1	ug/Kg
Fluorene	94	D2	660	D1	ug/Kg
Phenanthrene	830	D2	5900	D1	ug/Kg
Anthracene	170	D2	770	D1	ug/Kg
Fluoranthene	940	D2	5900	D1	ug/Kg
Pyrene	670	D2	4000	D1	ug/Kg
Chrysene	310	D2	1800	D1	ug/Kg
Benzo(a)anthracene	230	D2	1400	D1	ug/Kg
Benzo(b)fluoranthene	360	D2	2600	D1	ug/Kg
Benzo(k)fluoranthene	330	D2	1400	D1	ug/Kg
Benzo(a)pyrene	330	D2	1900	D1	ug/Kg
Indeno(1,2,3-cd)pyrene	280	D2	1400	D1	ug/Kg
Dibenzo(a,h)anthracene	130	D2	720	D1	ug/Kg
Benzo(g,h,i)perylene	300	D2	1600	D1	ug/Kg
Surrogate:	% RECOV		% RECOV		LIMITS
p-Terphenyl	*		*		19-162
Date Prepared	02/26/03		02/26/03		
Date Analyzed	03/04/03 18:58		03/04/03 19:19		

MISCELLANEOUS	METHOD	MPT-283-SB-21	MPT-283-SB-22	Units
Percent Solids	SM2540G	90	91	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D1 = Analyte value determined from a 1:20 dilution.
 D2 = Analyte value determined from a 1:5 dilution.

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RESULTS OF ANALYSIS

EPA METHOD 8270 - PAH Compounds by SIM	MPT-283-SB-23	MPT-283-SB-24	Units
Naphthalene	3.8 U	96 D1	ug/Kg
2-Methylnaphthalene	3.8 U	96 D1	ug/Kg
1-Methylnaphthalene	3.8 U	80 D1	ug/Kg
Acenaphthylene	3.8 U	73 U D1	ug/Kg
Acenaphthene	12	440 D1	ug/Kg
Fluorene	10	400 D1	ug/Kg
Phenanthrene	110	4200 D1	ug/Kg
Anthracene	19	820 D1	ug/Kg
Fluoranthene	160	5100 D1	ug/Kg
Pyrene	120	3600 D1	ug/Kg
Chrysene	64	1800 D1	ug/Kg
Benzo (a) anthracene	49	1300 D1	ug/Kg
Benzo (b) fluoranthene	95	2700 D1	ug/Kg
Benzo (k) fluoranthene	60	1800 D1	ug/Kg
Benzo (a) pyrene	76	2000 D1	ug/Kg
Indeno (1, 2, 3-cd) pyrene	79	1600 D1	ug/Kg
Dibenzo (a, h) anthracene	37	730 D1	ug/Kg
Benzo (g, h, i) perylene	91	1700 D1	ug/Kg
Surrogate:	% RECOV	% RECOV	LIMITS
p-Terphenyl	57	*	19-162
Date Prepared	02/26/03	02/26/03	
Date Analyzed	03/04/03 13:02	03/04/03 19:41	

MISCELLANEOUS	METHOD	MPT-283-SB-23	MPT-283-SB-24	Units
Percent Solids	SM2540G	86	90	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D1 = Analyte value determined from a 1:20 dilution.

ENCO LABORATORIES

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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB-25</u>		<u>MPT-283-SB-26</u>		<u>Units</u>
Naphthalene	86	D1	36 U	D3	ug/Kg
2-Methylnaphthalene	71	D1	36 U	D3	ug/Kg
1-Methylnaphthalene	71 U	D1	36 U	D3	ug/Kg
Acenaphthylene	71 U	D1	36 U	D3	ug/Kg
Acenaphthene	390	D1	140	D3	ug/Kg
Fluorene	430	D1	140	D3	ug/Kg
Phenanthrene	3600	D1	1300	D3	ug/Kg
Anthracene	860	D1	320	D3	ug/Kg
Fluoranthene	3900	D1	1700	D3	ug/Kg
Pyrene	2600	D1	1200	D3	ug/Kg
Chrysene	1200	D1	590	D3	ug/Kg
Benzo(a)anthracene	1000	D1	480	D3	ug/Kg
Benzo(b)fluoranthene	1700	D1	820	D3	ug/Kg
Benzo(k)fluoranthene	1000	D1	620	D3	ug/Kg
Benzo(a)pyrene	1400	D1	670	D3	ug/Kg
Indeno(1,2,3-cd)pyrene	1100	D1	580	D3	ug/Kg
Dibenzo(a,h)anthracene	450	D1	250	D3	ug/Kg
Benzo(g,h,i)perylene	1300	D1	660	D3	ug/Kg
Surrogate:	% RECOV		% RECOV		LIMITS
p-Terphenyl	*		*		19-162
Date Prepared	02/26/03		02/26/03		
Date Analyzed	03/04/03 20:02		03/04/03 20:24		

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB-25</u>	<u>MPT-283-SB-26</u>	<u>Units</u>
Percent Solids	SM2540G	93	92	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D1 = Analyte value determined from a 1:20 dilution.
 D3 = Analyte value determined from a 1:10 dilution.

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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB-27</u>	<u>MPT-283-SB-28</u>	<u>Units</u>
Naphthalene	36 U D3	820 D4	ug/Kg
2-Methylnaphthalene	36 U D3	760 D4	ug/Kg
1-Methylnaphthalene	36 U D3	500 D4	ug/Kg
Acenaphthylene	36 U D3	180 U D4	ug/Kg
Acenaphthene	140 D3	2600 D4	ug/Kg
Fluorene	150 D3	2800 D4	ug/Kg
Phenanthrene	1300 D3	22000 D4	ug/Kg
Anthracene	310 D3	4300 D4	ug/Kg
Fluoranthene	1600 D3	25000 D4	ug/Kg
Pyrene	1100 D3	17000 D4	ug/Kg
Chrysene	580 D3	7100 D4	ug/Kg
Benzo(a) anthracene	470 D3	6000 D4	ug/Kg
Benzo(b) fluoranthene	980 D3	9800 D4	ug/Kg
Benzo(k) fluoranthene	400 D3	5400 D4	ug/Kg
Benzo(a) pyrene	680 D3	8700 D4	ug/Kg
Indeno(1,2,3-cd) pyrene	530 D3	6000 D4	ug/Kg
Dibenzo(a,h)anthracene	220 D3	3000 D4	ug/Kg
Benzo(g,h,i)perylene	590 D3	6000 D4	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	*	*	19-162
Date Prepared	02/26/03	02/26/03	
Date Analyzed	03/04/03 20:46	03/04/03 21:07	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB-27</u>	<u>MPT-283-SB-28</u>	<u>Units</u>
Percent Solids	SM2540G	91	92	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D3 = Analyte value determined from a 1:10 dilution.
 D4 = Analyte value determined from a 1:50 dilution.

ENCO LABORATORIES

REPORT # : JAX30002
 DATE REPORTED: March 7, 2003
 REFERENCE : N4195
 PROJECT NAME : CTO 230 Tank 283

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RESULTS OF ANALYSIS

EPA METHOD 8270 - PAH Compounds by SIM	MPT-283-SB-29	MPT-283-SB-30	Units
Naphthalene	18 U D2	3.8 U	ug/Kg
2-Methylnaphthalene	18 U D2	3.8 U	ug/Kg
1-Methylnaphthalene	18 U D2	3.8 U	ug/Kg
Acenaphthylene	18 U D2	3.8 U	ug/Kg
Acenaphthene	90 D2	11	ug/Kg
Fluorene	90 D2	10	ug/Kg
Phenanthrene	690 D2	120	ug/Kg
Anthracene	170 D2	16	ug/Kg
Fluoranthene	800 D2	150	ug/Kg
Pyrene	530 D2	100	ug/Kg
Chrysene	280 D2	50	ug/Kg
Benzo(a)anthracene	230 D2	39	ug/Kg
Benzo(b)fluoranthene	400 D2	77	ug/Kg
Benzo(k)fluoranthene	230 D2	54	ug/Kg
Benzo(a)pyrene	320 D2	58	ug/Kg
Indeno(1,2,3-cd)pyrene	270 D2	6.4	ug/Kg
Dibenzo(a,h)anthracene	64 D2	24	ug/Kg
Benzo(g,h,i)perylene	300 D2	60	ug/Kg
Surrogate:	% RECOV	% RECOV	LIMITS
p-Terphenyl	*	60	19-162
Date Prepared	02/26/03	02/26/03	
Date Analyzed	03/04/03 21:29	03/04/03 15:34	

MISCELLANEOUS	METHOD	MPT-283-SB-29	MPT-283-SB-30	Units
Percent Solids	SM2540G	94	88	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D2 = Analyte value determined from a 1:5 dilution.

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EPA METHOD 8270 -

PAH Compounds by SIM

	MPT-283-SB-31		MPT-283-SB-32		Units
Naphthalene	260	D4	3.6	U	ug/Kg
2-Methylnaphthalene	240	D4	3.6	U	ug/Kg
1-Methylnaphthalene	180	U D4	3.6	U	ug/Kg
Acenaphthylene	180	U D4	3.6	U	ug/Kg
Acenaphthene	1000	D4	7.2		ug/Kg
Fluorene	1000	D4	6.8		ug/Kg
Phenanthrene	8900	D4	87		ug/Kg
Anthracene	2000	D4	13		ug/Kg
Fluoranthene	10000	D4	130		ug/Kg
Pyrene	7200	D4	98		ug/Kg
Chrysene	3300	D4	50		ug/Kg
Benzo (a) anthracene	2900	D4	38		ug/Kg
Benzo (b) fluoranthene	4900	D4	78		ug/Kg
Benzo (k) fluoranthene	3600	D4	63		ug/Kg
Benzo (a) pyrene	3800	D4	61		ug/Kg
Indeno (1,2,3-cd) pyrene	3100	D4	59		ug/Kg
Dibenzo (a,h) anthracene	1400	D4	27		ug/Kg
Benzo (g,h,i) perylene	3400	D4	66		ug/Kg

Surrogate:	% RECOV	% RECOV	LIMITS
p-Terphenyl	*	57	19-162
Date Prepared	02/26/03	02/26/03	
Date Analyzed	03/04/03 21:51	03/04/03 16:17	

MISCELLANEOUS	METHOD	MPT-283-SB-31	MPT-283-SB-32	Units
Percent Solids	SM2540G	90	92	%
Date Analyzed		02/25/03 12:00	02/25/03 12:00	

* = Surrogate recovery unavailable due to sample dilution.
 U = Compound was analyzed for but not detected to the level shown.
 D4 = Analyte value determined from a 1:50 dilution.

ENCO LABORATORIES

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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB-33</u>	<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	3.9 U	3.3 U	ug/Kg
2-Methylnaphthalene	3.9 U	3.3 U	ug/Kg
1-Methylnaphthalene	3.9 U	3.3 U	ug/Kg
Acenaphthylene	3.9 U	3.3 U	ug/Kg
Acenaphthene	3.9 U	3.3 U	ug/Kg
Fluorene	3.9 U	3.3 U	ug/Kg
Phenanthrene	3.9 U	3.3 U	ug/Kg
Anthracene	3.9 U	3.3 U	ug/Kg
Fluoranthene	3.9 U	3.3 U	ug/Kg
Pyrene	3.9 U	3.3 U	ug/Kg
Chrysene	3.9 U	3.3 U	ug/Kg
Benzo(a)anthracene	3.9 U	3.3 U	ug/Kg
Benzo(b)fluoranthene	3.9 U	3.3 U	ug/Kg
Benzo(k)fluoranthene	3.9 U	3.3 U	ug/Kg
Benzo(a)pyrene	3.9 U	3.3 U	ug/Kg
Indeno(1,2,3-cd)pyrene	3.9 U	3.3 U	ug/Kg
Dibenzo(a,h)anthracene	3.9 U	3.3 U	ug/Kg
Benzo(g,h,i)perylene	3.9 U	3.3 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	55	64	19-162
Date Prepared	02/26/03	02/26/03	
Date Analyzed	03/04/03 16:39	03/04/03 09:25	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB-33</u>	<u>LAB BLANK</u>	<u>Units</u>
Percent Solids	SM2540G	84	NA	%
Date Analyzed		02/25/03 12:00		

NA = Analysis not applicable for this sample.
 U = Compound was analyzed for but not detected to the level shown.

CLIENT : Tetra Tech NUS
ADDRESS: 8640 Philips Highway
Suite 16
Jacksonville, FL 32256

REPORT # : JAX31729
DATE SUBMITTED: May 15, 2003
DATE REPORTED : June 1, 2003

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ATTENTION: Mr. M. Peterson

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

REFERENCE: 4195

Site 283

#1	-	MPT-283-SB34(1)	@	10:15	(05/15/03)
#2	-	MPT-283-SB34(3)	@	10:25	(05/15/03)
#3	-	MPT-283-SB35(1)	@	10:30	(05/15/03)
#4	-	MPT-283-SB35(3)	@	10:35	(05/15/03)
#5	-	MPT-283-SB36(1)	@	10:45	(05/15/03)
#6	-	MPT-283-SB36(3)	@	10:50	(05/15/03)
#7	-	MPT-283-SB37(1)	@	11:50	(05/15/03)
#8	-	MPT-283-SB37(3)	@	11:55	(05/15/03)
#9	-	MPT-283-SB38(1)	@	12:00	(05/15/03)
#10	-	MPT-283-SB38(3)	@	12:05	(05/15/03)
#11	-	MPT-283-SB39(1)	@	12:15	(05/15/03)
#12	-	MPT-283-SB39(3)	@	12:20	(05/15/03)
#13	-	EQUIP 1	@	10:00	(05/15/03)
#14	-	EQUIP 2	@	12:30	(05/15/03)
#15	-	MPT-283-SB28(1)	@	13:00	(05/18/03)

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (July, 1999). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

Note: Analytical values are reported on a dry weight basis.

PROJECT MANAGER

Scott D. Martin

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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB34 (1)</u>	<u>MPT-283-SB34 (3)</u>	<u>Units</u>
Naphthalene	3.5 U	3.8 U	ug/Kg
2-Methylnaphthalene	3.5 U	3.8 U	ug/Kg
1-Methylnaphthalene	3.5 U	3.8 U	ug/Kg
Acenaphthylene	3.5 U	3.8 U	ug/Kg
Acenaphthene	3.5 U	3.8 U	ug/Kg
Fluorene	3.5 U	3.8 U	ug/Kg
Phenanthrene	3.5 U	3.8 U	ug/Kg
Anthracene	3.5 U	3.8 U	ug/Kg
Fluoranthene	3.8	4.1	ug/Kg
Pyrene	3.5	3.8 U	ug/Kg
Chrysene	3.5 U	3.8 U	ug/Kg
Benzo(a)anthracene	3.5 U	3.8 U	ug/Kg
Benzo(b)fluoranthene	3.5 U	3.8 U	ug/Kg
Benzo(k)fluoranthene	3.5 U	3.8 U	ug/Kg
Benzo(a)pyrene	7.7	3.8 U	ug/Kg
Indeno(1,2,3-cd)pyrene	3.5 U	3.8 U	ug/Kg
Dibenzo(a,h)anthracene	3.5 U	3.8 U	ug/Kg
Benzo(g,h,i)perylene	3.5 U	3.8 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	76	72	19-162
Date Prepared	05/16/03	05/16/03	
Date Analyzed	05/21/03 00:11	05/21/03 00:32	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB34 (1)</u>	<u>MPT-283-SB34 (3)</u>	<u>Units</u>
Percent Solids	SM2540G	95	87	%
Date Prepared		05/15/03 21:30	05/15/03 21:30	
Date Analyzed		05/16/03 14:30	05/16/03 14:30	

U = Compound was analyzed for but not detected to the level shown.

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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB35 (1)</u>	<u>MPT-283-SB35 (3)</u>	<u>Units</u>
Naphthalene	3.5 U	3.9 U	ug/Kg
2-Methylnaphthalene	3.5 U	3.9 U	ug/Kg
1-Methylnaphthalene	3.5 U	3.9 U	ug/Kg
Acenaphthylene	3.5 U	3.9 U	ug/Kg
Acenaphthene	3.5 U	3.9 U	ug/Kg
Fluorene	3.5 U	3.9 U	ug/Kg
Phenanthrene	14	8.9	ug/Kg
Anthracene	5.0	5.0	ug/Kg
Fluoranthene	27	19	ug/Kg
Pyrene	20	14	ug/Kg
Chrysene	17	9.6	ug/Kg
Benzo(a)anthracene	15	9.3	ug/Kg
Benzo(b)fluoranthene	32	16	ug/Kg
Benzo(k)fluoranthene	17	9.3	ug/Kg
Benzo(a)pyrene	26	16	ug/Kg
Indeno(1,2,3-cd)pyrene	26	16	ug/Kg
Dibenzo(a,h)anthracene	3.5 U	3.9 U	ug/Kg
Benzo(g,h,i)perylene	28	18	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	72	73	19-162
Date Prepared	05/16/03	05/16/03	
Date Analyzed	05/21/03 00:54	05/21/03 01:15	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB35 (1)</u>	<u>MPT-283-SB35 (3)</u>	<u>Units</u>
Percent Solids	SM2540G	93	85	%
Date Prepared		05/15/03 21:30	05/15/03 21:30	
Date Analyzed		05/16/03 14:30	05/16/03 14:30	

U = Compound was analyzed for but not detected to the level shown.

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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB36 (1)</u>	<u>MPT-283-SB36 (3)</u>	<u>Units</u>
Naphthalene	3.4 U	3.5 U	ug/Kg
2-Methylnaphthalene	3.4 U	3.5 U	ug/Kg
1-Methylnaphthalene	3.4 U	3.5 U	ug/Kg
Acenaphthylene	3.4 U	3.5 U	ug/Kg
Acenaphthene	3.4 U	3.5 U	ug/Kg
Fluorene	3.4 U	3.5 U	ug/Kg
Phenanthrene	3.4 U	3.5 U	ug/Kg
Anthracene	3.4 U	3.5 U	ug/Kg
Fluoranthene	5.8	3.5 U	ug/Kg
Pyrene	4.8	3.5 U	ug/Kg
Chrysene	3.4 U	3.5 U	ug/Kg
Benzo(a)anthracene	3.4 U	3.5 U	ug/Kg
Benzo(b)fluoranthene	5.0	3.5 U	ug/Kg
Benzo(k)fluoranthene	3.4 U	3.5 U	ug/Kg
Benzo(a)pyrene	8.2	3.5 U	ug/Kg
Indeno(1,2,3-cd)pyrene	8.5	3.5 U	ug/Kg
Dibenzo(a,h)anthracene	3.4 U	3.5 U	ug/Kg
Benzo(g,h,i)perylene	10	3.5 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	58	59	19-162
Date Prepared	05/16/03	05/16/03	
Date Analyzed	05/21/03 01:37	05/21/03 01:59	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB36 (1)</u>	<u>MPT-283-SB36 (3)</u>	<u>Units</u>
Percent Solids	SM2540G	96	93	%
Date Prepared		05/15/03 21:30	05/15/03 21:30	
Date Analyzed		05/16/03 14:30	05/16/03 14:30	

U = Compound was analyzed for but not detected to the level shown.

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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB37 (1)</u>	<u>MPT-283-SB37 (3)</u>	<u>Units</u>
Naphthalene	3.4 U	3.6 U	ug/Kg
2-Methylnaphthalene	3.4 U	3.6 U	ug/Kg
1-Methylnaphthalene	3.4 U	3.6 U	ug/Kg
Acenaphthylene	3.7	3.6	ug/Kg
Acenaphthene	3.4 U	3.6 U	ug/Kg
Fluorene	3.4 U	3.6 U	ug/Kg
Phenanthrene	17	15	ug/Kg
Anthracene	6.7	6.2	ug/Kg
Fluoranthene	39	32	ug/Kg
Pyrene	30	24	ug/Kg
Chrysene	23	18	ug/Kg
Benzo (a) anthracene	21	15	ug/Kg
Benzo (b) fluoranthene	45	31	ug/Kg
Benzo (k) fluoranthene	26	21	ug/Kg
Benzo (a) pyrene	34	25	ug/Kg
Indeno (1,2,3-cd) pyrene	36	24	ug/Kg
Dibenzo (a,h) anthracene	3.4 U	3.6 U	ug/Kg
Benzo (g,h,i) perylene	38	25	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	57	56	19-162
Date Prepared	05/16/03	05/16/03	
Date Analyzed	05/21/03 02:20	05/21/03 02:42	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB37 (1)</u>	<u>MPT-283-SB37 (3)</u>	<u>Units</u>
Percent Solids	SM2540G	98	91	%
Date Prepared		05/15/03 21:30	05/15/03 21:30	
Date Analyzed		05/16/03 14:30	05/16/03 14:30	

U = Compound was analyzed for but not detected to the level shown.

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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB38 (1)</u>	<u>MPT-283-SB38 (3)</u>	<u>Units</u>
Naphthalene	3.4 U	3.9 U	ug/Kg
2-Methylnaphthalene	3.4 U	3.9 U	ug/Kg
1-Methylnaphthalene	3.4 U	3.9 U	ug/Kg
Acenaphthylene	3.4 U	3.9 U	ug/Kg
Acenaphthene	3.4 U	3.9 U	ug/Kg
Fluorene	3.4 U	3.9 U	ug/Kg
Phenanthrene	3.4 U	3.9 U	ug/Kg
Anthracene	3.4 U	3.9 U	ug/Kg
Fluoranthene	3.4	3.9 U	ug/Kg
Pyrene	3.4 U	3.9 U	ug/Kg
Chrysene	3.4 U	3.9 U	ug/Kg
Benzo(a)anthracene	3.4 U	3.9 U	ug/Kg
Benzo(b)fluoranthene	3.4 U	3.9 U	ug/Kg
Benzo(k)fluoranthene	3.4 U	3.9 U	ug/Kg
Benzo(a)pyrene	3.4 U	3.9 U	ug/Kg
Indeno(1,2,3-cd)pyrene	3.4 U	3.9 U	ug/Kg
Dibenzo(a,h)anthracene	3.4 U	3.9 U	ug/Kg
Benzo(g,h,i)perylene	3.4 U	3.9 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	39	57	19-162
Date Prepared	05/16/03	05/16/03	
Date Analyzed	05/21/03 03:03	05/21/03 03:25	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB38 (1)</u>	<u>MPT-283-SB38 (3)</u>	<u>Units</u>
Percent Solids	SM2540G	96	84	%
Date Prepared		05/15/03 21:30	05/15/03 21:30	
Date Analyzed		05/16/03 14:30	05/16/03 14:30	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
 REPORT # : JAX31729
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<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB39 (1)</u>	<u>MPT-283-SB39 (3)</u>	<u>Units</u>
Naphthalene	5.0	3.8 U	ug/Kg
2-Methylnaphthalene	5.0	3.8 U	ug/Kg
1-Methylnaphthalene	3.7	3.8 U	ug/Kg
Acenaphthylene	4.0	4.2	ug/Kg
Acenaphthene	17	14	ug/Kg
Fluorene	12	15	ug/Kg
Phenanthrene	180	170	ug/Kg
Anthracene	26	30	ug/Kg
Fluoranthene	220	210	ug/Kg
Pyrene	160	140	ug/Kg
Chrysene	110	98	ug/Kg
Benzo(a)anthracene	99	85	ug/Kg
Benzo(b)fluoranthene	200	140	ug/Kg
Benzo(k)fluoranthene	78	88	ug/Kg
Benzo(a)pyrene	120	110	ug/Kg
Indeno(1,2,3-cd)pyrene	110	88	ug/Kg
Dibenzo(a,h)anthracene	3.4 U	3.8 U	ug/Kg
Benzo(g,h,i)perylene	110	96	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	53	87	19-162
Date Prepared	05/16/03	05/16/03	
Date Analyzed	05/21/03 03:46	05/21/03 04:08	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB39 (1)</u>	<u>MPT-283-SB39 (3)</u>	<u>Units</u>
Percent Solids	SM2540G	98	86	%
Date Prepared		05/15/03 21:30	05/15/03 21:30	
Date Analyzed		05/16/03 14:30	05/16/03 14:30	

U = Compound was analyzed for but not detected to the level shown.

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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>EQUIP 1</u>	<u>EQUIP 2</u>	<u>Units</u>
Naphthalene	0.10 U	0.10 U	ug/L
2-Methylnaphthalene	0.10 U	0.10 U	ug/L
1-Methylnaphthalene	0.10 U	0.10 U	ug/L
Acenaphthylene	0.10 U	0.10 U	ug/L
Acenaphthene	0.10 U	0.10 U	ug/L
Fluorene	0.10 U	0.10 U	ug/L
Phenanthrene	0.10 U	0.10 U	ug/L
Anthracene	0.10 U	0.10 U	ug/L
Fluoranthene	0.10 U	0.10 U	ug/L
Pyrene	0.10 U	0.10 U	ug/L
Chrysene	0.10 U	0.10 U	ug/L
Benzo(a)anthracene	0.10 U	0.10 U	ug/L
Benzo(b)fluoranthene	0.10 U	0.10 U	ug/L
Benzo(k)fluoranthene	0.10 U	0.10 U	ug/L
Benzo(a)pyrene	0.10 U	0.10 U	ug/L
Indeno(1,2,3-cd)pyrene	0.10 U	0.10 U	ug/L
Dibenzo(a,h)anthracene	0.10 U	0.10 U	ug/L
Benzo(g,h,i)perylene	0.10 U	0.10 U	ug/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	66	64	20-148
Date Prepared	05/19/03	05/19/03	
Date Analyzed	05/20/03 19:08	05/20/03 19:29	

U = Compound was analyzed for but not detected to the level shown.

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EPA METHOD 8270 -
PAH Compounds by SIM

	<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	0.10 U	ug/L
2-Methylnaphthalene	0.10 U	ug/L
1-Methylnaphthalene	0.10 U	ug/L
Acenaphthylene	0.10 U	ug/L
Acenaphthene	0.10 U	ug/L
Fluorene	0.10 U	ug/L
Phenanthrene	0.10 U	ug/L
Anthracene	0.10 U	ug/L
Fluoranthene	0.10 U	ug/L
Pyrene	0.10 U	ug/L
Chrysene	0.10 U	ug/L
Benzo(a)anthracene	0.10 U	ug/L
Benzo(b)fluoranthene	0.10 U	ug/L
Benzo(k)fluoranthene	0.10 U	ug/L
Benzo(a)pyrene	0.10 U	ug/L
Indeno(1,2,3-cd)pyrene	0.10 U	ug/L
Dibenzo(a,h)anthracene	0.10 U	ug/L
Benzo(g,h,i)perylene	0.10 U	ug/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	66	20-148
Date Prepared	05/19/03	
Date Analyzed	05/20/03 17:20	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB28(1)</u>	<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	3.4 U	3.3 U	ug/Kg
2-Methylnaphthalene	3.4 U	3.3 U	ug/Kg
1-Methylnaphthalene	3.4 U	3.3 U	ug/Kg
Acenaphthylene	3.4 U	3.3 U	ug/Kg
Acenaphthene	7.6	3.3 U	ug/Kg
Fluorene	7.2	3.3 U	ug/Kg
Phenanthrene	79	3.3 U	ug/Kg
Anthracene	18	3.3 U	ug/Kg
Fluoranthene	140	3.3 U	ug/Kg
Pyrene	100	3.3 U	ug/Kg
Chrysene	67	3.3 U	ug/Kg
Benzo(a)anthracene	70	3.3 U	ug/Kg
Benzo(b)fluoranthene	79	3.3 U	ug/Kg
Benzo(k)fluoranthene	48	3.3 U	ug/Kg
Benzo(a)pyrene	67	3.3 U	ug/Kg
Indeno(1,2,3-cd)pyrene	38	3.3 U	ug/Kg
Dibenzo(a,h)anthracene	3.4 U	3.3 U	ug/Kg
Benzo(g,h,i)perylene	41	3.3 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	93	63	19-162
Date Prepared	05/21/03	05/16/03	
Date Analyzed	05/22/03 14:22	05/20/03 22:44	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MPT-283-SB28(1)</u>	<u>LAB BLANK</u>	<u>Units</u>
Percent Solids	SM2540G	96	NA	%
Date Prepared		05/23/03 11:00		
Date Analyzed		05/23/03 19:00		

NA = Analysis not applicable for this sample.
 U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
 REPORT # : JAX31729
 DATE REPORTED: June 1, 2003
 REFERENCE : 4195
 PROJECT NAME : Site 283

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RESULTS OF ANALYSIS

EPA METHOD 8270 -
PAH Compounds by SIM

	<u>LAB BLANK</u>	<u>Units</u>
Naphthalene	3.3 U	ug/Kg
2-Methylnaphthalene	3.3 U	ug/Kg
1-Methylnaphthalene	3.3 U	ug/Kg
Acenaphthylene	3.3 U	ug/Kg
Acenaphthene	3.3 U	ug/Kg
Fluorene	3.3 U	ug/Kg
Phenanthrene	3.3 U	ug/Kg
Anthracene	3.3 U	ug/Kg
Fluoranthene	3.3 U	ug/Kg
Pyrene	3.3 U	ug/Kg
Chrysene	3.3 U	ug/Kg
Benzo(a)anthracene	3.3 U	ug/Kg
Benzo(b)fluoranthene	3.3 U	ug/Kg
Benzo(k)fluoranthene	3.3 U	ug/Kg
Benzo(a)pyrene	3.3 U	ug/Kg
Indeno(1,2,3-cd)pyrene	3.3 U	ug/Kg
Dibenzo(a,h)anthracene	3.3 U	ug/Kg
Benzo(g,h,i)perylene	3.3 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	79	19-162
Date Prepared	05/21/03	
Date Analyzed	05/22/03 13:39	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JAX31729
DATE REPORTED: June 1, 2003
REFERENCE : 4195
PROJECT NAME : Site 283

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LABORATORY CERTIFICATIONS

Laboratory Certification: NELAC:E82277

All analyses reported with this project were analyzed by the facility indicated unless identified below.

ENCO LABORATORIES
 REPORT # : JAX31729
 DATE REPORTED: June 1, 2003
 REFERENCE : 4195
 PROJECT NAME : Site 283

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QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
EPA Method 8270				
Naphthalene	58/ 60/ 58	30-112	3	28
Acenaphthene	82/ 84/ 80	28-113	2	32
Benzo(a)pyrene	135/144/129	39-148	6	38
Benzo(g,h,i)perylene	84/100/ 88	20-130	17	43
Naphthalene	62/ 72/ 61	20-131	15	29
Acenaphthene	69/ 86/ 74	24-132	22	23
Benzo(a)pyrene	137/146/122	34-140	6	28
Benzo(g,h,i)perylene	152/183/116	31-152	18	21
Naphthalene	62/ 72/ 72	20-131	15	29
Acenaphthene	69/ 86/ 84	24-132	22	23
Benzo(a)pyrene	137/146/126	34-140	6	28
Benzo(g,h,i)perylene	152/183/104	31-152	18	21

< = Less Than
 MS = Matrix Spike
 MSD = Matrix Spike Duplicate
 LCS = Laboratory Control Standard
 RPD = Relative Percent Difference

ENCO LABORATORIES
 REPORT # : JAX38346
 DATE REPORTED: March 31, 2004
 REFERENCE : 4195
 PROJECT NAME : Site 283

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RESULTS OF ANALYSIS

EPA METHOD 8270 -
PAH Compounds by SIM

	<u>MPT-283-SB-54-3</u>	<u>Units</u>
Naphthalene	35 U	ug/Kg
2-Methylnaphthalene	35 U	ug/Kg
1-Methylnaphthalene	35 U	ug/Kg
Acenaphthylene	35 U	ug/Kg
Acenaphthene	110	ug/Kg
Fluorene	56	ug/Kg
Phenanthrene	1300	ug/Kg
Anthracene	140	ug/Kg
Fluoranthene	1700	ug/Kg
Pyrene	1200	ug/Kg
Chrysene	720	ug/Kg
Benzo(a)anthracene	540	ug/Kg
Benzo(b)fluoranthene	850	ug/Kg
Benzo(k)fluoranthene	380	ug/Kg
Benzo(a)pyrene	500	ug/Kg
Indeno(1,2,3-cd)pyrene	290	ug/Kg
Dibenzo(a,h)anthracene	100	ug/Kg
Benzo(g,h,i)perylene	330	ug/Kg

Surrogate:

	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	92	19-162
Date Prepared	03/26/04	
Date Analyzed	03/27/04 22:47	

Miscellaneous

	<u>METHOD</u>	<u>MPT-283-SB-54-3</u>	<u>Units</u>
Percent Solids	WETS/72	94	%
Date Prepared		03/30/04	
Date Analyzed		03/31/04 11:00	

U = Compound was analyzed for but not detected to the level shown.

CLIENT : Tetra Tech NUS
ADDRESS: 8640 Philips Highway
Suite 16
Jacksonville, FL 32256

REPORT # : JAX38278
DATE SUBMITTED: March 22, 2004
DATE REPORTED : March 29, 2004

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ATTENTION: Mr. M. Peterson

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

REFERENCE: 4195

Site 283

03/22/04

JAX38278-1 : MPT-283-SB-44-3 @ 12:45
JAX38278-2 : MPT-283-SB-45-3 @ 13:00
JAX38278-3 : MPT-283-SB-46-3 @ 13:15
JAX38278-4 : MPT-283-SB-47-3 @ 13:30
JAX38278-5 : MPT-283-SB-48-3 @ 13:45

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (May, 2001). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

Note: Analytical values are reported on a dry weight basis.

PROJECT MANAGER

Scott D. Martin

ENCO LABORATORIES
 REPORT # : JAX38278
 DATE REPORTED: March 29, 2004
 REFERENCE : 4195
 PROJECT NAME : Site 283

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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB-44-3</u>	<u>MPT-283-SB-45-3</u>	<u>Units</u>
Benzo(a)anthracene	260	91	ug/Kg
Benzo(b)fluoranthene	350	100	ug/Kg
Benzo(a)pyrene	200	49	ug/Kg
Indeno(1,2,3-cd)pyrene	87	38 U	ug/Kg
Dibenzo(a,h)anthracene	36 U	38 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	105	110	19-162
Date Prepared	03/24/04	03/24/04	
Date Analyzed	03/26/04 14:36	03/26/04 16:04	

<u>Miscellaneous</u>	<u>METHOD</u>	<u>MPT-283-SB-44-3</u>	<u>MPT-283-SB-45-3</u>	<u>Units</u>
Percent Solids	WETS/72	92	88	%
Date Prepared		03/23/04	03/23/04	
Date Analyzed		03/24/04 11:00	03/24/04 11:00	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
 REPORT # : JAX38278
 DATE REPORTED: March 29, 2004
 REFERENCE : 4195
 PROJECT NAME : Site 283

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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB-46-3</u>	<u>MPT-283-SB-47-3</u>	<u>Units</u>
Benzo(a)anthracene	35 U	36 U	ug/Kg
Benzo(b)fluoranthene	35 U	36 U	ug/Kg
Benzo(a)pyrene	35 U	36 U	ug/Kg
Indeno(1,2,3-cd)pyrene	35 U	36 U	ug/Kg
Dibenzo(a,h)anthracene	35 U	36 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	94	95	19-162
Date Prepared	03/24/04	03/24/04	
Date Analyzed	03/26/04 16:33	03/26/04 18:17	

<u>Miscellaneous</u>	<u>METHOD</u>	<u>MPT-283-SB-46-3</u>	<u>MPT-283-SB-47-3</u>	<u>Units</u>
Percent Solids	WETS/72	94	93	%
Date Prepared		03/23/04	03/23/04	
Date Analyzed		03/24/04 11:00	03/24/04 11:00	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
 REPORT # : JAX38278
 DATE REPORTED: March 29, 2004
 REFERENCE : 4195
 PROJECT NAME : Site 283

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RESULTS OF ANALYSIS

<u>EPA METHOD 8270 - PAH Compounds by SIM</u>	<u>MPT-283-SB-48-3</u>	<u>LAB BLANK</u>	<u>Units</u>
Benzo(a)anthracene	35 U	33 U	ug/Kg
Benzo(b)fluoranthene	35 U	33 U	ug/Kg
Benzo(a)pyrene	35 U	33 U	ug/Kg
Indeno(1,2,3-cd)pyrene	35 U	33 U	ug/Kg
Dibenzo(a,h)anthracene	35 U	33 U	ug/Kg
<u>Surrogate:</u>	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	96	99	19-162
Date Prepared	03/24/04	03/24/04	
Date Analyzed	03/26/04 18:44	03/26/04 12:43	

<u>Miscellaneous</u>	<u>METHOD</u>	<u>MPT-283-SB-48-3</u>	<u>LAB BLANK</u>	<u>Units</u>
Percent Solids	WETS/72	95	NA	%
Date Prepared		03/23/04		
Date Analyzed		03/24/04 11:00		

NA = Analysis not applicable for this sample.
 U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JAX38278
DATE REPORTED: March 29, 2004
REFERENCE : 4195
PROJECT NAME : Site 283

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LABORATORY CERTIFICATIONS

Laboratory Certification: NELAC:E82277

All analyses reported with this project were analyzed by the facility indicated unless identified below.

ENCO LABORATORIES
REPORT # : JAX38278
DATE REPORTED: March 29, 2004
REFERENCE : 4195
PROJECT NAME : Site 283

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QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>LCS/MS/MSD</u>	<u>LCS</u> <u>LIMITS</u>	<u>MS/MSD</u> <u>LIMITS</u>	<u>RPD</u> <u>MS/MSD</u>	<u>RPD</u> <u>LIMITS</u>
<u>EPA Method 8270</u>					
Naphthalene	82/ 81/ 79	48-88	20-131	2	29
Acenaphthene	80/ 77/ 76	57-96	24-132	1	23
Benzo(a)pyrene	62/ 82/ 84	37-134	34-140	2	28
Benzo(g,h,i)perylene	52/ 70/ 71	11-145	31-152	1	21

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

MEMO TO: M. PETERSON -36656
DATE: 3/3/2004 – PAGE 2

ADDITIONAL COMMENTS

Samples MPT-283-SB40-3, MPT-283-SB41-3, and MPT-283-SB43-3 were analyzed at a 10X dilution. Sample MPT-283-SB42-3 was analyzed at a 100X dilution. The dilution caused elevated reporting limits for nondetected PAHs.

The laboratory reported only five PAHs on the Form Is and 18 PAHs on the EDD. According to the statement of work, the laboratory should have reported 18 PAHs on the Form Is. Per conversations with the ENCO and the project office, it was confirmed that only 5 PAHs were to be reported. The EDD was amended to list only the 5 PAHs.

EXECUTIVE SUMMARY

Laboratory Performance: Continuing calibration (%D) noncompliances were noted.

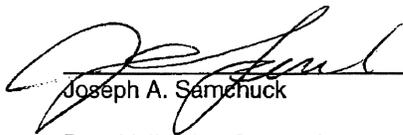
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."


Seth C. Staffen

Environmental Scientist/Data Validator
Tetra Tech NUS


Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = % Difference between columns/detectors $>25\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4195

SDG: 36653 MEDIA: SOIL DATA FRACTION: PAH

nsample MPT-283-SB40-3
 samp_date 1/14/2004
 lab_id JAX36653-1
 qc_type NM
 units UG/KG
 Pct_Solids 88.0
 DUP_OF:

nsample MPT-283-SB41-3
 samp_date 1/14/2004
 lab_id JAX36653-2
 qc_type NM
 units UG/KG
 Pct_Solids 90.0
 DUP_OF:

nsample MPT-283-SB42-3
 samp_date 1/14/2004
 lab_id JAX36653-3
 qc_type NM
 units UG/KG
 Pct_Solids 92.0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	950		
BENZO(A)PYRENE	720		
BENZO(B)FLUORANTHENE	850		
DIBENZO(A,H)ANTHRACENE	250		
INDENO(1,2,3-CD)PYRENE	740		

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	1600		
BENZO(A)PYRENE	1100		
BENZO(B)FLUORANTHENE	1200		
DIBENZO(A,H)ANTHRACENE	120		
INDENO(1,2,3-CD)PYRENE	1100		

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	9800		
BENZO(A)PYRENE	8000		
BENZO(B)FLUORANTHENE	10000		
DIBENZO(A,H)ANTHRACENE	2200		
INDENO(1,2,3-CD)PYRENE	5400		

PROJ_NO: 4195

SDG: 36653 MEDIA: SOIL DATA FRACTION: PAH

nsample MPT-283-SB43-3
samp_date 1/14/2004
lab_id JAX36653-4
qc_type NM
units UG/KG
Pct_Solids 91.0
DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	36	U	
BENZO(A)PYRENE	36	U	
BENZO(B)FLUORANTHENE	36	U	
DIBENZO(A,H)ANTHRACENE	36	U	
INDENO(1,2,3-CD)PYRENE	36	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

RESULTS OF ANALYSIS

**EPA METHOD 8270 -
PAH Compounds by SIM**

	<u>MPT-283-SB-49-3</u>	<u>Units</u>
Naphthalene	35 U	ug/Kg
2-Methylnaphthalene	35 U	ug/Kg
1-Methylnaphthalene	35 U	ug/Kg
Acenaphthylene	35 U	ug/Kg
Acenaphthene	110	ug/Kg
Fluorene	56	ug/Kg
Phenanthrene	1300	ug/Kg
Anthracene	140	ug/Kg
Fluoranthene	1700	ug/Kg
Pyrene	1200	ug/Kg
Chrysene	720	ug/Kg
Benzo(a)anthracene	540	ug/Kg
Benzo(b)fluoranthene	850	ug/Kg
Benzo(k)fluoranthene	380	ug/Kg
Benzo(a)pyrene	500	ug/Kg
Indeno(1,2,3-cd)pyrene	290	ug/Kg
Dibenzo(a,h)anthracene	100	ug/Kg
Benzo(g,h,i)perylene	330	ug/Kg

Surrogate:

	<u>% RECOV</u>	<u>LIMITS</u>
p-Terphenyl	92	19-162
Date Prepared	03/26/04	
Date Analyzed	03/27/04 22:47	

Miscellaneous

	<u>METHOD</u>	<u>MPT-283-SB-49-3</u>	<u>Units</u>
Percent Solids	WETS/72	94	%
Date Prepared		03/30/04	
Date Analyzed		03/31/04 11:00	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : JAX38346
DATE REPORTED: March 31, 2004
REFERENCE : 4195
PROJECT NAME : Site 283

APPENDIX C

FLUCL CALCULATIONS

Appendix C

Table C - 1

Summary of FL UCL Analysis at Site 283

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
Naval Station Mayport
Mayport, Florida

Compound	Direct Exposure Residential¹ (mg/kg)	Commercial/ Industrial¹ (mg/kg)	Leachability Based Criteria¹ (mg/kg)	Site 283 3ft Data - FL UCL Recommendation (mg/kg)
Naphthalene	40	270	1.7	0.690
2-Methylnaphthalene	80	560	6.1	0.685
1-Methylnaphthalene	68	470	2.2	0.669
Acenaphthylene	1100	11000	27	1.119
Acenaphthene	1900	18000	2.1	0.852
Anthracene	18000	260000	2500	1.110
Fluorene	2200	28000	160	0.724
Benzo(a)anthracene	1.4	5	3.2	2.341
Benzo(a)pyrene	0.1	0.5	8	2.224
Benzo(b)fluoranthene	1.4	4.8	10	2.719
Benzo(g,h,i)perylene	2300	41000	32000	1.711
Benzo(k)fluoranthene	15	52	25	1.644
Chrysene	140	450	77	2.254
Dibenzo(a,h)anthracene	0.1	0.5	30	0.680
Fluoranthene	2900	48000	1200	6.915
Indeno(1,2,3-cd)pyrene	1.5	5.3	28	1.535
Phenanthrene	2000	30000	250	6.087
Pyrene	2200	37000	880	4.619

Notes:

¹Chapter 62-770, Florida Administrative Code (FAC) (April 30, 1999) was used in the evaluation of this data.

Appendix C
Table C - 2

3FT SUBSURFACE SOIL EXCEEDANCES

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
Naval Station Mayport
Mayport, Florida

Sample ID	Compound															
	Naphthalene	2-Methylnaphthalene	Acenaphthene	Anthracene	Fluorene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
SB-10			X		X	X		X	X	X	X	X	X	X	X	X
SB-13					X	X		X		X		X	X	X	X	X
SB-16					X					X		X		X	X	X
SB-19			X	X	X	X	X	X	X	X	X	X	X	X	X	X
SB-22											X					
SB-24									X		X		X			
SB-28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SB-29									X	X						
SB-31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SB-42					X	X	X				X		X			
SB-50					X	X	X				X		X			

Notes:

1 "X" indicates a exceedance of FL UCL recommendation for the respective compound.

Appendix C

Table C-3

Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283

Naval Station Mayport

Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Naphthalene (mg/kg)		2-Methylnaphthalene (mg/kg)		1-Methylnaphthalene (mg/kg)		Acenaphthylene (mg/kg)		Acenaphthene (mg/kg)	
SB-10	7/10/2002	3ft	1.9	U	1.9	U	1.9	U	3.8	U	3.8	U
SB-13	10/3/2002	3ft	2	U	2	U	2	U	2	U	2	U
SB-14	10/3/2002	3ft	0.42	U	0.42	U	0.42	U	0.84	U	0.84	U
SB-15	10/3/2002	3ft	0.4	U	0.4	U	0.4	U	0.81	U	0.81	U
SB-16	10/3/2002	3ft	2.1	U	2.1	U	2.1	U	4.2	U	4.2	U
SB-17	2/24/2003	3ft	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U
SB-18	2/24/2003	3ft	0.011		0.01		0.0077		0.0037	U	0.034	
SB-19	2/24/2003	3ft	0.2		0.19		0.14		0.073	U	0.84	
SB-20	2/24/2003	3ft	0.018	U	0.018	U	0.018	U	0.018	U	0.048	
SB-21	2/24/2003	3ft	0.02		0.02		0.018	U	0.018	U	0.089	
SB-22	2/24/2003	3ft	0.18		0.14		0.088		0.072	U	0.59	
SB-23	2/24/2003	3ft	0.0038	U	0.0038	U	0.0038	U	0.0038	U	0.012	
SB-24	2/24/2003	3ft	0.096		0.096		0.080		0.073	U	0.44	
SB-25	2/24/2003	3ft	0.086		0.071		0.071	U	0.071	U	0.39	
SB-26	2/24/2003	3ft	0.036	U	0.036	U	0.036	U	0.036	U	0.14	
SB-27	2/24/2003	3ft	0.036	U	0.036	U	0.036	U	0.036	U	0.14	
SB-28	5/18/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0076	
SB-28	2/24/2003	3ft	0.82		0.76		0.50		0.18	U	2.60	
SB-29	2/24/2003	3ft	0.02	U	0.02	U	0.02	U	0.02	U	0.09	
SB-30	2/24/2003	3ft	0.00	U	0.00	U	0.00	U	0.00	U	0.01	
SB-31	2/24/2003	3ft	0.26		0.24		0.18	U	0.18	U	1.00	
SB-32	2/24/2003	3ft	0.0036	U	0.0036	U	0.0036	U	0.0036	U	0.0072	
SB-33	2/24/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-34	5/15/2003	1ft	0.0035	U	0.0035	U	0.0035	U	0.0035	U	0.0035	U
SB-34	5/15/2003	3ft	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U
SB-35	5/15/2003	1ft	0.0035	U	0.0035	U	0.0035	U	0.0035	U	0.0035	U
SB-35	5/15/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-36	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U
SB-36	5/15/2003	3ft	0.0035	U	0.0035	U	0.0035	U	0.0035	U	0.0035	U
SB-37	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0037		0.0034	U
SB-37	5/15/2003	3ft	0.0036	U	0.0036	U	0.0036	U	0.0036		0.0036	U

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Naphthalene (mg/kg)		2-Methylnaphthalene (mg/kg)		1-Methylnaphthalene (mg/kg)		Acenaphthylene (mg/kg)		Acenaphthene (mg/kg)	
SB-38	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U
SB-38	5/15/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-39	5/15/2003	1ft	0.005		0.005		0.0037		0.004		0.0017	
SB-39	5/15/2003	3ft	0.0038	U	0.0038	U	0.0038	U	0.0042		0.0014	
SB-40	1/14/2004	3ft	NA		NA		NA		NA		NA	
SB-41	1/14/2004	3ft	NA		NA		NA		NA		NA	
SB-42	1/14/2004	3ft	NA		NA		NA		NA		NA	
SB-43	1/14/2004	3ft	NA		NA		NA		NA		NA	
SB-44	3/22/2004	3ft	NA		NA		NA		NA		NA	
SB-45	3/22/2004	3ft	NA		NA		NA		NA		NA	
SB-46	3/22/2004	3ft	NA		NA		NA		NA		NA	
SB-47	3/22/2004	3ft	NA		NA		NA		NA		NA	
SB-48	3/22/2004	3ft	NA		NA		NA		NA		NA	
SB-49	3/22/2004	3ft	NA		NA		NA		NA		NA	
SB-50	9/24/2004	1ft	NA		NA		NA		NA		NA	
SB-50	9/24/2004	3ft	NA		NA		NA		NA		NA	
SB-51	9/24/2004	1ft	NA		NA		NA		NA		NA	
SB-51	9/24/2004	3ft	NA		NA		NA		NA		NA	
SB-52	9/24/2004	1ft	NA		NA		NA		NA		NA	
SB-52	9/24/2004	3ft	NA		NA		NA		NA		NA	
SB-53	9/24/2004	1ft	NA		NA		NA		NA		NA	
SB-53	9/24/2004	3ft	NA		NA		NA		NA		NA	
SB-54	2/10/2004	1ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-54	2/10/2004	3ft	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
SB-55	2/10/2004	1ft	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U
SB-55	2/10/2004	3ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-56	2/10/2004	1ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-56	2/10/2004	3ft	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
SB-57	2/10/2004	1ft	0.037	U	0.037	U	0.037	U	0.037	U	0.037	U
SB-57	2/10/2004	3ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Naphthalene (mg/kg)		2-Methylnaphthalene (mg/kg)		1-Methylnaphthalene (mg/kg)		Acenaphthylene (mg/kg)		Acenaphthene (mg/kg)	
SB-58	2/10/2004	1ft	0.038	U	0.038	U	0.038	U	0.038	U	0.038	U
SB-58	2/10/2004	3ft	0.037	U	0.037	U	0.037	U	0.037	U	0.037	U
SB-59	2/10/2004	1ft	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
SB-59	2/10/2004	3ft	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U
SB-60	2/10/2004	1ft	NA		NA		NA		NA		NA	
SB-60	2/10/2004	3ft	NA		NA		NA		NA		NA	
SB-61	2/10/2004	1ft	NA		NA		NA		NA		NA	
SB-61	2/10/2004	3ft	NA		NA		NA		NA		NA	
SB-62	4/1/2005	1ft	NA		NA		NA		NA		NA	
SB-62	4/1/2005	3ft	NA		NA		NA		NA		NA	

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results
Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
Naval Station Mayport
Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Anthracene (mg/kg)		Fluorene (mg/kg)		Benzo(a)anthracene (mg/kg)		Benzo(a)pyrene (mg/kg)		Benzo(b)fluoranthene (mg/kg)	
SB-10	7/10/2002	3ft	1.74		1.9	U	3.49		3.37		2.39	
SB-13	10/3/2002	3ft	2	U	2	U	3.99		2.34		1.63	
SB-14	10/3/2002	3ft	0.285		0.304		0.918		0.626		0.427	
SB-15	10/3/2002	3ft	0.4	U	0.4	U	0.4	U	0.081	U	0.081	U
SB-16	10/3/2002	3ft	2.1	U	2.1	U	3.01		1.78		1.22	
SB-17	2/24/2003	3ft	0.0037	U	0.0037	U	0.0037		0.006		0.0063	
SB-18	2/24/2003	3ft	0.051		0.032		0.11		0.17		0.2	
SB-19	2/24/2003	3ft	1.4		0.84		2.4		3.6		3.8	
SB-20	2/24/2003	3ft	0.096		0.048		0.19		0.32		0.4	
SB-21	2/24/2003	3ft	0.17		0.094		0.23		0.33		0.36	
SB-22	2/24/2003	3ft	0.77		0.66		1.4		1.9		2.6	
SB-23	2/24/2003	3ft	0.019		0.01		0.049		0.076		0.095	
SB-24	2/24/2003	3ft	0.82		0.40		1.30		2.00		2.70	
SB-25	2/24/2003	3ft	0.86		0.43		1.00		1.40		1.70	
SB-26	2/24/2003	3ft	0.32		0.14		0.48		0.67		0.82	
SB-27	2/24/2003	3ft	0.31		0.15		0.47		0.68		0.98	
SB-28	5/18/2003	1ft	0.018		0.0072		0.07		0.067		0.079	
SB-28	2/24/2003	3ft	4.30		2.80		6.00		8.70		9.80	
SB-29	2/24/2003	3ft	0.17		0.09		0.23		0.32		0.40	
SB-30	2/24/2003	3ft	0.02		0.01		0.04		0.06		0.08	
SB-31	2/24/2003	3ft	2.00		1.00		2.90		3.80		4.90	
SB-32	2/24/2003	3ft	0.013		0.0068		0.038		0.061		0.078	
SB-33	2/24/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-34	5/15/2003	1ft	0.0035	U	0.0035	U	0.0035	U	0.0077		0.0035	U
SB-34	5/15/2003	3ft	0.00	U	0.00	U	0.0038	U	0.00	U	0.00	U
SB-35	5/15/2003	1ft	0.005		0.005		0.015		0.026		0.032	
SB-35	5/15/2003	3ft	0.005		0.039	U	0.0093		0.016		0.016	
SB-36	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0082		0.005	
SB-36	5/15/2003	3ft	0.0035	U	0.0035	U	0.0035	U	0.0035	U	0.0035	U
SB-37	5/15/2003	1ft	0.0067		0.0034	U	0.021		0.034		0.045	
SB-37	5/15/2003	3ft	0.0062		0.0036	U	0.015		0.025		0.031	

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Anthracene (mg/kg)		Fluorene (mg/kg)		Benzo(a)anthracene (mg/kg)		Benzo(a)pyrene (mg/kg)		Benzo(b)fluoranthene (mg/kg)	
SB-38	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U
SB-38	5/15/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-39	5/15/2003	1ft	0.026		0.012		0.099		0.12		0.2	
SB-39	5/15/2003	3ft	0.03		0.015		0.085		0.11		0.14	
SB-40	1/14/2004	3ft	NA		NA		0.95		0.72		0.86	
SB-41	1/14/2004	3ft	NA		NA		1.6		1.1		1.2	
SB-42	1/14/2004	3ft	NA		NA		9.8		8		10	
SB-43	1/14/2004	3ft	NA		NA		0.036	U	0.036	U	0.036	U
SB-44	3/22/2004	3ft	NA		NA		0.26		0.2		0.35	
SB-45	3/22/2004	3ft	NA		NA		0.091		0.049		0.1	
SB-46	3/22/2004	3ft	NA		NA		0.035	U	0.035	U	0.035	U
SB-47	3/22/2004	3ft	NA		NA		0.036	U	0.036	U	0.036	U
SB-48	3/22/2004	3ft	NA		NA		0.035	U	0.035	U	0.035	U
SB-49	3/22/2004	3ft	NA		NA		0.54		0.5		0.85	
SB-50	9/24/2004	1ft	NA		NA		0.056		0.049		0.077	
SB-50	9/24/2004	3ft	NA		NA		6.70		3.70		7.60	
SB-51	9/24/2004	1ft	NA		NA		0.056		0.039		0.063	
SB-51	9/24/2004	3ft	NA		NA		0.11		0.072		0.11	
SB-52	9/24/2004	1ft	NA		NA		NS		NS		NS	
SB-52	9/24/2004	3ft	NA		NA		NS		NS		NS	
SB-53	9/24/2004	1ft	NA		NA		0.036		0.036		0.036	
SB-53	9/24/2004	3ft	NA		NA		0.84		0.64		0.94	
SB-54	2/10/2004	1ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-54	2/10/2004	3ft	0.041		0.036	U	0.23		0.20		0.32	
SB-55	2/10/2004	1ft	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U
SB-55	2/10/2004	3ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-56	2/10/2004	1ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-56	2/10/2004	3ft	0.036	U	0.036	U	0.076		0.057		0.09	
SB-57	2/10/2004	1ft	0.037	U	0.037	U	0.041		0.037		0.059	
SB-57	2/10/2004	3ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Anthracene (mg/kg)		Fluorene (mg/kg)		Benzo(a)anthracene (mg/kg)		Benzo(a)pyrene (mg/kg)		Benzo(b)fluoranthene (mg/kg)	
SB-58	2/10/2004	1ft	0.038	U	0.038	U	0.038	U	0.038	U	0.038	U
SB-58	2/10/2004	3ft	0.037	U	0.037	U	0.037	U	0.037	U	0.037	U
SB-59	2/10/2004	1ft	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
SB-59	2/10/2004	3ft	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U
SB-60	2/10/2004	1ft	NA		NA		NA		NA		NA	
SB-60	2/10/2004	3ft	NA		NA		NA		NA		NA	
SB-61	2/10/2004	1ft	NA		NA		NA		NA		NA	
SB-61	2/10/2004	3ft	NA		NA		NA		NA		NA	
SB-62	4/1/2005	1ft	NA		NA		0.036	U	0.036	U	0.046	
SB-62	4/1/2005	3ft	NA		NA		0.042	U	0.042	U	0.042	U

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
Naval Station Mayport
Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Benzo(g,h,i)perylene (mg/kg)		Benzo(k)fluoranthene (mg/kg)		Chrysene (mg/kg)		Dibenzo(a,h)anthracene (mg/kg)		Fluoranthene (mg/kg)	
SB-10	7/10/2002	3ft	2.07		1.67		4.17		0.854		13.2	
SB-13	10/3/2002	3ft	1.96		1.36		3.32		0.408		9.8	
SB-14	10/3/2002	3ft	0.576		0.354		0.898		0.111		2.37	
SB-15	10/3/2002	3ft	0.081	U	0.081	U	0.4	U	0.081	U	0.4	U
SB-16	10/3/2002	3ft	1.32		1.01		2.73		0.331		7.58	
SB-17	2/24/2003	3ft	0.001		0.004		0.004		0.0037	U	0.011	
SB-18	2/24/2003	3ft	0.19		0.11		0.14		0.087		0.47	
SB-19	2/24/2003	3ft	2.7		2.7		3.1		1.3		9.1	
SB-20	2/24/2003	3ft	0.3		0.26		0.27		0.12		0.79	
SB-21	2/24/2003	3ft	0.3		0.33		0.31		0.13		0.94	
SB-22	2/24/2003	3ft	1.6		1.4		1.8		0.72		5.9	
SB-23	2/24/2003	3ft	0.091		0.06		0.064		0.037		0.16	
SB-24	2/24/2003	3ft	1.70		1.80		1.80		0.73		5.10	
SB-25	2/24/2003	3ft	1.30		1.00		1.20		0.45		3.90	
SB-26	2/24/2003	3ft	0.66		0.62		0.59		0.25		1.70	
SB-27	2/24/2003	3ft	0.59		0.40		0.58		0.22		1.60	
SB-28	5/18/2003	1ft	0.041		0.048		0.067		0.0034	U	0.140	
SB-28	2/24/2003	3ft	6.00		5.40		7.10		3.00		25.00	
SB-29	2/24/2003	3ft	0.30		2.30		2.80		0.06		0.80	
SB-30	2/24/2003	3ft	0.06		0.05		0.05		0.02		0.15	
SB-31	2/24/2003	3ft	3.40		3.60		3.30		1.40		10.00	
SB-32	2/24/2003	3ft	0.066		0.063		0.05		0.027		0.13	
SB-33	2/24/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-34	5/15/2003	1ft	0.0035	U	0.0035	U	0.0035	U	0.0035	U	0.0038	
SB-34	5/15/2003	3ft	0.00	U	0.00	U	0.00	U	0.00	U	0.0041	
SB-35	5/15/2003	1ft	0.028		0.017		0.017		0.0035	U	0.027	
SB-35	5/15/2003	3ft	0.018		0.0093		0.0096		0.0039	U	0.019	
SB-36	5/15/2003	1ft	0.001		0.0034	U	0.0034	U	0.0034	U	0.0058	
SB-36	5/15/2003	3ft	0.0035	U	0.0035	U	0.0035	U	0.0035	U	0.0035	U
SB-37	5/15/2003	1ft	0.038		0.026		0.023		0.0034	U	0.039	
SB-37	5/15/2003	3ft	0.025		0.021		0.018		0.0036	U	0.032	

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Benzo(g,h,i)perylene (mg/kg)		Benzo(k)fluoranthene (mg/kg)		Chrysene (mg/kg)		Dibenzo(a,h)anthracene (mg/kg)		Fluoranthene (mg/kg)	
SB-38	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	
SB-38	5/15/2003	3ft	0.0039	U	0.0039	U	0.0039	U	0.0039	U	0.0039	U
SB-39	5/15/2003	1ft	0.11		0.078		0.11		0.0034	U	0.22	
SB-39	5/15/2003	3ft	0.096		0.088		0.098		0.0038	U	0.21	
SB-40	1/14/2004	3ft	NA		NA		NA		0.26		NA	
SB-41	1/14/2004	3ft	NA		NA		NA		0.12		NA	
SB-42	1/14/2004	3ft	NA		NA		NA		2.2		NA	
SB-43	1/14/2004	3ft	NA		NA		NA		0.036	U	NA	
SB-44	3/22/2004	3ft	NA		NA		NA		0.036	U	NA	
SB-45	3/22/2004	3ft	NA		NA		NA		0.038	U	NA	
SB-46	3/22/2004	3ft	NA		NA		NA		0.035	U	NA	
SB-47	3/22/2004	3ft	NA		NA		NA		0.036	U	NA	
SB-48	3/22/2004	3ft	NA		NA		NA		0.035	U	NA	
SB-49	3/22/2004	3ft	NA		NA		NA		0.1		NA	
SB-50	9/24/2004	1ft	NA		NA		NA		0.035	U	NA	
SB-50	9/24/2004	3ft	NA		NA		NA		0.77		NA	
SB-51	9/24/2004	1ft	NA		NA		NA		0.035	U	NA	
SB-51	9/24/2004	3ft	NA		NA		NA		0.038	U	NA	
SB-52	9/24/2004	1ft	NA		NA		NA		NS		NA	
SB-52	9/24/2004	3ft	NA		NA		NA		NS		NA	
SB-53	9/24/2004	1ft	NA		NA		NA		0.036		NA	
SB-53	9/24/2004	3ft	NA		NA		NA		0.12		NA	
SB-54	2/10/2004	1ft	0.045	U	0.035	U	0.063		0.035	U	0.13	
SB-54	2/10/2004	3ft	0.16		0.089		0.3		0.036	U	0.68	
SB-55	2/10/2004	1ft	0.034	U	0.034	U	0.034	U	0.034	U	0.039	
SB-55	2/10/2004	3ft	0.035	U	0.035	U	0.035	U	0.035	U	0.045	
SB-56	2/10/2004	1ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U
SB-56	2/10/2004	3ft	0.051		0.036	U	0.082		0.036	U	0.18	
SB-57	2/10/2004	1ft	0.048		0.037	U	0.052		0.037	U	0.082	
SB-57	2/10/2004	3ft	0.035	U	0.035	U	0.035	U	0.035	U	0.035	U

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound									
			Benzo(g,h,i)perylene (mg/kg)		Benzo(k)fluoranthene (mg/kg)		Chrysene (mg/kg)		Dibenzo(a,h)anthracene (mg/kg)		Fluoranthene (mg/kg)	
SB-58	2/10/2004	1ft	0.038	U	0.038	U	0.038	U	0.038	U	0.038	U
SB-58	2/10/2004	3ft	0.037	U	0.037	U	0.037	U	0.037	U	0.037	U
SB-59	2/10/2004	1ft	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
SB-59	2/10/2004	3ft	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U
SB-60	2/10/2004	1ft	NA		NA		NA		NA		NA	
SB-60	2/10/2004	3ft	NA		NA		NA		NA		NA	
SB-61	2/10/2004	1ft	NA		NA		NA		NA		NA	
SB-61	2/10/2004	3ft	NA		NA		NA		NA		NA	
SB-62	4/1/2005	1ft	NA		NA		NA		0.036	U	NA	
SB-62	4/1/2005	3ft	NA		NA		NA		0.042	U	NA	

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound					
			Indeno(1,2,3-cd)pyrene (mg/kg)		Phenanthrene (mg/kg)		Pyrene (mg/kg)	
SB-10	7/10/2002	3ft	1.88		11.5		8.31	
SB-13	10/3/2002	3ft	1.7		8.36		5.67	
SB-14	10/3/2002	3ft	0.454		1.87		1.54	
SB-15	10/3/2002	3ft	0.081	U	0.4	U	0.4	U
SB-16	10/3/2002	3ft	1.21		6.95		4.7	
SB-17	2/24/2003	3ft	0.0037	U	0.0071		0.0085	
SB-18	2/24/2003	3ft	0.18		0.34		0.33	
SB-19	2/24/2003	3ft	2.4		8.0		6.4	
SB-20	2/24/2003	3ft	0.27		0.62		0.54	
SB-21	2/24/2003	3ft	0.28		0.83		0.67	
SB-22	2/24/2003	3ft	1.4		5.9		4.0	
SB-23	2/24/2003	3ft	0.079		0.11		0.12	
SB-24	2/24/2003	3ft	1.60		4.20		3.60	
SB-25	2/24/2003	3ft	1.10		3.60		2.60	
SB-26	2/24/2003	3ft	0.58		1.30		1.20	
SB-27	2/24/2003	3ft	0.53		1.30		1.10	
SB-28	5/18/2003	1ft	0.038		0.079		0.100	
SB-28	2/24/2003	3ft	6.00		22.00		17.00	
SB-29	2/24/2003	3ft	0.27		0.69		0.53	
SB-30	2/24/2003	3ft	0.01		0.12		0.10	
SB-31	2/24/2003	3ft	3.10		8.90		7.20	
SB-32	2/24/2003	3ft	0.059		0.087		0.098	
SB-33	2/24/2003	3ft	0.0039	U	0.0039	U	0.0039	U
SB-34	5/15/2003	1ft	0.0035	U	0.0035	U	0.0035	
SB-34	5/15/2003	3ft	0.00	U	0.00	U	0.00	U
SB-35	5/15/2003	1ft	0.026		0.014		0.020	
SB-35	5/15/2003	3ft	0.016		0.0089		0.014	
SB-36	5/15/2003	1ft	0.0085		0.0034	U	0.0048	
SB-36	5/15/2003	3ft	0.0035	U	0.0035	U	0.0035	U
SB-37	5/15/2003	1ft	0.036		0.017		0.030	
SB-37	5/15/2003	3ft	0.024		0.015		0.024	

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
Naval Station Mayport
Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound					
			Indeno(1,2,3-cd)pyrene (mg/kg)		Phenanthrene (mg/kg)		Pyrene (mg/kg)	
SB-38	5/15/2003	1ft	0.0034	U	0.0034	U	0.0034	U
SB-38	5/15/2003	3ft	0.0039	U	0.0039	U	0.0039	U
SB-39	5/15/2003	1ft	0.11		0.18		0.16	
SB-39	5/15/2003	3ft	0.088		0.17		0.14	
SB-40	1/14/2004	3ft	0.74		NA		NA	
SB-41	1/14/2004	3ft	1.1		NA		NA	
SB-42	1/14/2004	3ft	5.4		NA		NA	
SB-43	1/14/2004	3ft	0.036	U	NA		NA	
SB-44	3/22/2004	3ft	0.087		NA		NA	
SB-45	3/22/2004	3ft	0.038	U	NA		NA	
SB-46	3/22/2004	3ft	0.035	U	NA		NA	
SB-47	3/22/2004	3ft	0.036	U	NA		NA	
SB-48	3/22/2004	3ft	0.035	U	NA		NA	
SB-49	3/22/2004	3ft	0.29		NA		NA	
SB-50	9/24/2004	1ft	0.035		NA		NA	
SB-50	9/24/2004	3ft	1.90		NA		NA	
SB-51	9/24/2004	1ft	0.035	U	NA		NA	
SB-51	9/24/2004	3ft	0.038	U	NA		NA	
SB-52	9/24/2004	1ft	NS		NA		NA	
SB-52	9/24/2004	3ft	NS		NA		NA	
SB-53	9/24/2004	1ft	0.036		NA		NA	
SB-53	9/24/2004	3ft	0.33		NA		NA	
SB-54	2/10/2004	1ft	0.035	U	0.077		0.09	
SB-54	2/10/2004	3ft	0.12		0.45		0.48	
SB-55	2/10/2004	1ft	0.034	U	0.034		0.034	U
SB-55	2/10/2004	3ft	0.035	U	0.035		0.035	U
SB-56	2/10/2004	1ft	0.035	U	0.035		0.035	U
SB-56	2/10/2004	3ft	0.043		0.13		0.1	
SB-57	2/10/2004	1ft	0.037		0.045		0.064	
SB-57	2/10/2004	3ft	0.035	U	0.035		0.035	U

Appendix C
Table C-3 (continued)
Summary of Fixed-Base Laboratory Soil Sample Results

Soil Excavation and Groundwater Monitoring Work Plan, Tank Site 283
 Naval Station Mayport
 Mayport, Florida

Sample ID	Date Collected	Sample Depth	Compound					
			Indeno(1,2,3-cd)pyrene (mg/kg)		Phenanthrene (mg/kg)		Pyrene (mg/kg)	
SB-58	2/10/2004	1ft	0.038	U	0.038		0.038	U
SB-58	2/10/2004	3ft	0.037	U	0.037		0.037	U
SB-59	2/10/2004	1ft	0.052	U	0.052		0.052	U
SB-59	2/10/2004	3ft	0.051	U	0.051		0.051	U
SB-60	2/10/2004	1ft	NA		NA		NA	
SB-60	2/10/2004	3ft	NA		NA		NA	
SB-61	2/10/2004	1ft	NA		NA		NA	
SB-61	2/10/2004	3ft	NA		NA		NA	
SB-62	4/1/2005	1ft	0.11		NA		NA	
SB-62	4/1/2005	3ft	0.042	U	NA		NA	

Table C - 4

FDEP UCL Calculator Version 0.97

7/11/05

Note: Bounding estimates are worst case 95% UCLs based on the Chebyshev (mean, std) method.

Summary Statistics for Naphthalene		Summary Statistics for Naphthalene	
Number of Samples	34	Minimum	NA
Number of Censored Data	26	Maximum	NA
Minimum	0.2	Mean	NA
Maximum	2.1	Standard Deviation	NA
Mean	0.26095	Variance	NA
Median	0.0355		
Standard Deviation	0.574275	Goodness-of-Fit Results	
Variance		Distribution Recommended	NA
Coefficient of Variation	2.200707	Distribution Used	Neither
Skewness	2.672251		
95% UCL (Assuming Normal Data)		Estimates Assuming Lognormal Distribution	
Student's-t	NA	MLE Mean	NA
		MLE Standard Deviation	NA
		MLE Median	NA
		MLE Coefficient of Variation	NA
95% UCL (Adjusted for Skewness)		MVUE Estimate of Mean	NA
Adjusted-CLT	NA	MVUE Estimate of Std. Dev.	NA
Modified-t	NA	MVUE Estimate of SE	NA
		MVUE Coefficient of Variation	NA
95% Non-parametric UCL		UCL Assuming Lognormal Distribution	
CLT	NA	95% H-UCL	NA
Jackknife	NA	95% Chebyshev (MVUE) UCL	NA
Standard Bootstrap	NA	99% Chebyshev (MVUE) UCL	NA
Bootstrap-t	NA		
Chebyshev (Mean, Std)	NA		
95% Bounding Method UCL		FDEP Recommended UCL to Use:	
Bounding (Max)	0.690246	0.690 mg/kg	
Bounding (1/2 DL)	0.384347		
		PROUCL	NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 5

FDEP UCL Calculator Version 0.97

7/11/05

Note: Bounding estimates are worst case 95% UCLs based on the Chebyshev (mean, std) method.

Summary Statistics for 2-Methylnaphthalene		Summary Statistics for 2-Methylnaphthalene	
Number of Samples	34	Minimum	NA
Number of Censored Data	26	Maximum	NA
Minimum	0.19	Mean	NA
Maximum	2.1	Standard Deviation	NA
Mean	0.256656	Variance	NA
Median	0.0355		
Standard Deviation	0.572999	Goodness-of-Fit Results	
Variance		Distribution Recommended	NA
Coefficient of Variation	2.232556	Distribution Used	Neither
Skewness	2.704873		
95% UCL (Assuming Normal Data)		Estimates Assuming Lognormal Distribution	
Student's-t	NA	MLE Mean	NA
		MLE Standard Deviation	NA
		MLE Median	NA
		MLE Coefficient of Variation	NA
		MVUE Estimate of Mean	NA
		MVUE Estimate of Std. Dev.	NA
		MVUE Estimate of SE	NA
		MVUE Coefficient of Variation	NA
		UCL Assuming Lognormal Distribution	
		95% H-UCL	NA
		95% Chebyshev (MVUE) UCL	NA
		99% Chebyshev (MVUE) UCL	NA
		FDEP Recommended UCL to Use:	
		0.685 mg/kg	
		PROUCL	NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 6

FDEP UCL Calculator Version 0.97

7/11/05

Note: Bounding estimates are worst case 95% UCLs based on the Chebyshev (mean, std) method.

Summary Statistics for 1-Methylnaphthalene

Number of Samples	34
Number of Censored Data	29
Minimum	0.419999987
Maximum	2.099999905
Mean	0.243647054
Median	0.035499997
Standard Deviation	0.568677425
Variance	
Coefficient of Variation	2.33402133
Skewness	2.81889081

95% UCL (Assuming Normal Data)

Student's-t	NA
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95% UCL (Adjusted for Skewness)

Adjusted-CLT	NA
Modified-t	NA

95% Non-parametric UCL

CLT	NA
Jackknife	NA
Standard Bootstrap	NA
Bootstrap-t	NA
Chebyshev (Mean, Std)	NA

95% Bounding Method UCL

Bounding (Max)	0.668759108
Bounding (1/2 DL)	0.350657552

Summary Statistics for 1-Methylnaphthalene

Minimum	NA
Maximum	NA
Mean	NA
Standard Deviation	NA
Variance	NA

Goodness-of-Fit Results

Distribution Recommended	NA
Distribution Used	Neither

Estimates Assuming Lognormal Distribution

MLE Mean	NA
MLE Standard Deviation	NA
MLE Median	NA
MLE Coefficient of Variation	NA

MVUE Estimate of Mean	NA
MVUE Estimate of Std. Dev.	NA
MVUE Estimate of SE	NA
MVUE Coefficient of Variation	NA

UCL Assuming Lognormal Distribution

95% H-UCL	NA
95% Chebyshev (MVUE) UCL	NA
99% Chebyshev (MVUE) UCL	NA

FDEP Recommended UCL to Use:

0.669 mg/kg

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 7

FDEP UCL Calculator Version 0.97

7/11/05

Note: Bounding estimates are worst case 95% UCLs based on the Chebyshev (mean, std) method.

Summary Statistics for Acenaphthylene		Summary Statistics for Acenaphthylene	
Number of Samples	34	Minimum	NA
Number of Censored Data	31	Maximum	NA
Minimum	2	Mean	NA
Maximum	4.199999809	Standard Deviation	NA
Mean	0.373541176	Variance	NA
Median	0.035499997	Goodness-of-Fit Results	
Standard Deviation	0.996904433	Distribution Recommended	NA
Variance		Distribution Used	Neither
Coefficient of Variation	2.668793917	Estimates Assuming Lognormal Distribution	
Skewness	3.235929251	MLE Mean	NA
95% UCL (Assuming Normal Data)		MLE Standard Deviation	NA
Student's-t	NA	MLE Median	NA
95% UCL (Adjusted for Skewness)		MLE Coefficient of Variation	NA
Adjusted-CLT	NA	MVUE Estimate of Mean	NA
Modified-t	NA	MVUE Estimate of Std. Dev.	NA
95% Non-parametric UCL		MVUE Estimate of SE	NA
CLT	NA	MVUE Coefficient of Variation	NA
Jackknife	NA	UCL Assuming Lognormal Distribution	
Standard Bootstrap	NA	95% H-UCL	NA
Bootstrap-t	NA	95% Chebyshev (MVUE) UCL	NA
Chebyshev (Mean, Std)	NA	99% Chebyshev (MVUE) UCL	NA
95% Bounding Method UCL		FDEP Recommended UCL to Use:	
Bounding (Max)	1.118772268	1.12 mg/kg	
Bounding (1/2 DL)	0.560308695	PROUCL NA	

Note: These estimates are valid ONLY if samples are random and representative.

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FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Acenaphthene	
Number of Samples	34
Number of Censored Data	18
Minimum	0.0014
Maximum	2.599999905
Mean	0.364286756
Median	0.029750001
Standard Deviation	0.652945236
Variance	0.426337481
Coefficient of Variation	1.79239356
Skewness	2.286256075
95% UCL (Assuming Normal Data)	
Student's-t	0.553795874
95% UCL (Adjusted for Skewness)	
Adjusted-CLT	0.595413625
Modified-t	0.561113536
95% Non-parametric UCL	
CLT	0.548492491
Jackknife	NA
Standard Bootstrap	0.549599886
Bootstrap-t	0.719448388
Chebyshev (Mean, Std)	0.852403998

Summary Statistics for ln()	
Minimum	-6.57128286
Maximum	0.955511391
Mean	-3.09537766
Standard Deviation	2.445218923
Variance	5.979095582

Goodness-of-Fit Results	
Distribution Recommended	Neither
Distribution Used	Neither

Estimates Assuming Lognormal Distribution	
MLE Mean	0.899577683
MLE Standard Deviation	17.85798528
MLE Median	0.045257917
MLE Coefficient of Variation	19.85152101

MVUE Estimate of Mean	0.53121382
MVUE Estimate of Std. Dev.	2.358431394
MVUE Estimate of SE	0.372646616
MVUE Coefficient of Variation	4.43970263

UCL Assuming Lognormal Distribution	
95% H-UCL	6.088797569
95% Chebyshev (MVUE) UCL	2.155543089
99% Chebyshev (MVUE) UCL	4.239010334

FDEP Recommended UCL to Use:
0.852 mg/kg

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

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FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Anthracene		Summary Statistics for In()	
Number of Samples	34	Minimum	-6.348139286
Number of Censored Data	13	Maximum	1.458615065
Minimum	0.00175	Mean	-2.712819704
Maximum	4.30000019	Standard Deviation	2.359808077
Mean	0.46407647	Variance	5.568694159
Median	0.046	Goodness-of-Fit Results	
Standard Deviation	0.86440106	Distribution Recommended	Neither
Variance	0.7471892	Distribution Used	Neither
Coefficient of Variation	1.86262634	Estimates Assuming Lognormal Distribution	
Skewness	3.07570267	MLE Mean	1.074147556
95% UCL (Assuming Normal Data)		MLE Standard Deviation	17.35643058
Student's-t	0.71495795	MLE Median	0.066349457
95% UCL (Adjusted for Skewness)		MLE Coefficient of Variation	16.15832991
Adjusted-CLT	0.79150248	MVUE Estimate of Mean	0.731899202
Modified-t	0.72799051	MVUE Estimate of Std. Dev.	3.585895613
95% Non-parametric UCL		MVUE Estimate of SE	0.471121859
CLT	0.70793712	MVUE Coefficient of Variation	4.899439163
Jackknife	NA	UCL Assuming Lognormal Distribution	
Standard Bootstrap	0.72009969	95% H-UCL	6.438670158
Bootstrap-t	0.97039574	95% Chebyshev (MVUE) UCL	2.785472155
Chebyshev (Mean, Std)	1.11027014	99% Chebyshev (MVUE) UCL	5.419514656
FDEP Recommended UCL to Use:			
1.11 mg/kg			
PROUCL NA			

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 10

FDEP UCL Calculator Version 0.97

7/11/05

Note: Results reflect censored parameter estimations based on distributional assumptions.

Censor Estimated Statistics for Fluorene	
Number of Samples	34
Number of Censored Data	17
Minimum Non-censored	0.032
Maximum	2.8
Mean	NA
Median	NA
Standard Deviation	NA
Variance	NA
Coefficient of Variation	NA
Skewness	NA
95% UCL (Assuming Normal Data)	
Student's-t	NA
95% UCL (Adjusted for Skewness)	
Adjusted-CLT	NA
Modified-t	NA
95% Non-parametric UCL	
CLT	NA
Jackknife	NA
Standard Bootstrap	NA
Bootstrap-t	NA
Chebyshev (Mean, Std)	0.72408

Censor Estimated Statistics for ln()	
Minimum	-6.34813929
Maximum	1.02961946
Mean	-2.93045584
Standard Deviation	2.31948704
Variance	5.38002013
Fit	0.98540121
Goodness-of-Fit Results	
Distribution Recommended	Lognormal
Distribution Used	Lognormal
Estimates Assuming Lognormal Distribution	
MLE Mean	0.78627728
MLE Standard Deviation	11.5565815
MLE Median	0.0533727
MLE Coefficient of Variation	14.6978449
MVUE Estimate of Mean	0.51157731
MVUE Estimate of Std. Dev.	2.13208577
MVUE Estimate of SE	0.33895123
MVUE Coefficient of Variation	4.16767072
UCL Assuming Lognormal Distribution	
95% H-UCL	4.45702887
95% Chebyshev (MVUE) UCL	1.98903179
99% Chebyshev (MVUE) UCL	3.88410807

FDEP Recommended UCL to Use:
0.724 mg/kg

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 11

FDEP UCL Calculator Version 0.97

7/11/05

Note: Results reflect censored parameter estimations based on distributional assumptions.

Censor Estimated Statistics for Benzo(a)anthracene

Number of Samples	47
Number of Censored Data	13
Minimum Non-censored	0.0185
Maximum	9.800000191
Mean	NA
Median	NA
Standard Deviation	NA
Variance	NA
Coefficient of Variation	NA
Skewness	NA

95% UCL (Assuming Normal Data)

Student's-t	NA
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95% UCL (Adjusted for Skewness)

Adjusted-CLT	NA
Modified-t	NA

95% Non-parametric UCL

CLT	NA
Jackknife	NA
Standard Bootstrap	NA
Bootstrap-t	NA
Chebyshev (Mean, Std)	2.340549707

Censor Estimated Statistics for ln()

Minimum	-6.348139286
Maximum	2.282382488
Mean	-1.887581033
Standard Deviation	2.402303859
Variance	5.771063832
Fit	0.983736753

Goodness-of-Fit Results

Distribution Recommended	Lognormal
Distribution Used	Lognormal

Estimates Assuming Lognormal Distribution

MLE Mean	2.712717453
MLE Standard Deviation	48.51738297
MLE Median	0.151437689
MLE Coefficient of Variation	17.885159

MVUE Estimate of Mean	2.064302921
MVUE Estimate of Std. Dev.	14.02665571
MVUE Estimate of SE	1.204025328
MVUE Coefficient of Variation	6.79486308

UCL Assuming Lognormal Distribution

95% H-UCL	11.93366623
95% Chebyshev (MVUE) UCL	7.312529087
99% Chebyshev (MVUE) UCL	14.04423428

FDEP Recommended UCL to Use:

2.341 mg/kg

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 12

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Benzo(a)pyrene		Summary Statistics for ln()	
Number of Samples	47	Minimum	-6.348139286
Number of Censored Data	13	Maximum	2.163322926
Minimum	0.00175	Mean	-1.927276733
Maximum	8.699999809	Standard Deviation	2.377252178
Mean	1.01689467	Variance	5.651327916
Median	0.170000002	Goodness-of-Fit Results	
Standard Deviation	1.899109565	Distribution Recommended	Neither
Variance	3.606617141	Distribution Used	Neither
Coefficient of Variation	1.867557793	Estimates Assuming Lognormal Distribution	
Skewness	2.799628019	MLE Mean	2.455639523
95% UCL (Assuming Normal Data)		MLE Standard Deviation	41.35906678
Student's-t	1.481906414	MLE Median	0.145544015
95% UCL (Adjusted for Skewness)		MLE Coefficient of Variation	16.84248295
Adjusted-CLT	1.59347415	MVUE Estimate of Mean	1.88542068
Modified-t	1.500760317	MVUE Estimate of Std. Dev.	12.4354142
95% Non-parametric UCL		MVUE Estimate of SE	1.087000539
CLT	1.472581983	MVUE Coefficient of Variation	6.595564763
Jackknife	NA	UCL Assuming Lognormal Distribution	
Standard Bootstrap	1.464882851	95% H-UCL	10.50304317
Bootstrap-t	1.745661736	95% Chebyshev (MVUE) UCL	6.623547554
Chebyshev (Mean, Std)	2.224396944	99% Chebyshev (MVUE) UCL	12.70096779
		FDEP Recommended UCL to Use:	
		2.224 mg/kg	

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 13

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Benzo(b)fluoranthene		Summary Statistics for In()	
Number of Samples	47	Minimum	-6.348139286
Number of Censored Data	13	Maximum	2.302585125
Minimum	0.00175	Mean	-1.777559659
Maximum	10	Standard Deviation	2.424303771
Mean	1.221028731	Variance	5.877248774
Median	0.200000003	Goodness-of-Fit Results	
Standard Deviation	2.356150705	Distribution Recommended	Neither
Variance	5.551446144	Distribution Used	Neither
Coefficient of Variation	1.92964395	Estimates Assuming Lognormal Distribution	
Skewness	2.776208878	MLE Mean	3.193331496
95% UCL (Assuming Normal Data)		MLE Standard Deviation	60.23694724
Student's-t	1.797950625	MLE Median	0.169050184
95% UCL (Adjusted for Skewness)		MLE Coefficient of Variation	18.8633555
Adjusted-CLT	1.935113668	MVUE Estimate of Mean	2.410647869
Modified-t	1.82114625	MVUE Estimate of Std. Dev.	16.81371068
95% Non-parametric UCL		MVUE Estimate of SE	1.420202592
CLT	1.786382198	MVUE Coefficient of Variation	6.974768439
Jackknife	NA	UCL Assuming Lognormal Distribution	
Standard Bootstrap	1.787576556	95% H-UCL	14.40283108
Bootstrap-t	2.408434868	95% Chebyshev (MVUE) UCL	8.601168633
Chebyshev (Mean, Std)	2.719129324	99% Chebyshev (MVUE) UCL	16.54152107
		FDEP Recommended UCL to Use:	
		2.719 mg/kg	

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Tabl C - 14

FDEP UCL Calculator Version 0.97

7/11/05

Note: Results reflect censored parameter estimations based on distributional assumptions.

Censor Estimated Statistics for Benzo(g,h,i)perylene

Number of Samples	34
Number of Censored Data	9
Minimum Non-censored	0.025
Maximum	6
Mean	NA
Median	NA
Standard Deviation	NA
Variance	NA
Coefficient of Variation	NA
Skewness	NA

95% UCL (Assuming Normal Data)

Student's-t	NA
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95% UCL (Adjusted for Skewness)

Adjusted-CLT	NA
Modified-t	NA

95% Non-parametric UCL

CLT	NA
Jackknife	NA
Standard Bootstrap	NA
Bootstrap-t	NA
Chebyshev (Mean, Std)	1.710764885

Censor Estimated Statistics for ln()

Minimum	-6.907755375
Maximum	1.791759491
Mean	-2.083359273
Standard Deviation	2.386026912
Variance	5.693124424
Fit	0.972887635

Goodness-of-Fit Results

Distribution Recommended	Lognormal
Distribution Used	Lognormal

Estimates Assuming Lognormal Distribution

MLE Mean	2.145135969
MLE Standard Deviation	36.89506426
MLE Median	0.124511242
MLE Coefficient of Variation	17.19940591

MVUE Estimate of Mean	1.51921308
MVUE Estimate of Std. Dev.	8.476406789
MVUE Estimate of SE	0.950153973
MVUE Coefficient of Variation	5.579471963

UCL Assuming Lognormal Distribution

95% H-UCL	13.34091663
95% Chebyshev (MVUE) UCL	5.660839081
99% Chebyshev (MVUE) UCL	10.97315025

FDEP Recommended UCL to Use:

1.711 mg/kg

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 15

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Benzo(k)fluoranthene		Summary Statistics for In()	
Number of Samples	34	Minimum	-6.348139286
Number of Censored Data	10	Maximum	1.686398983
Minimum	0.00175	Mean	-2.236013498
Maximum	5.400000095	Standard Deviation	2.438023231
Mean	0.730804409	Variance	5.943957275
Median	0.088500001		
Standard Deviation	1.222127308		
Variance	1.493595157		
Coefficient of Variation	1.672304235		
Skewness	2.342792988		
95% UCL (Assuming Normal Data)		Goodness-of-Fit Results	
Student's-t	1.085511446	Distribution Recommended	Neither
		Distribution Used	Neither
95% UCL (Adjusted for Skewness)		Estimates Assuming Lognormal Distribution	
Adjusted-CLT	1.165579796	MLE Mean	2.087495745
Modified-t	1.099546671	MLE Standard Deviation	40.71641135
		MLE Median	0.106883748
		MLE Coefficient of Variation	19.50490747
95% Non-parametric UCL		MVUE Estimate of Mean	1.425943851
CLT	1.075585008	MVUE Estimate of Std. Dev.	8.17657254
Jackknife	NA	MVUE Estimate of SE	0.919533164
Standard Bootstrap	1.043979883	MVUE Coefficient of Variation	5.734147618
Bootstrap-t	1.428172112		
Chebyshev (Mean, Std)	1.644420743		
		UCL Assuming Lognormal Distribution	
		95% H-UCL	13.98304749
		95% Chebyshev (MVUE) UCL	5.434096813
		99% Chebyshev (MVUE) UCL	10.57520676
		FDEP Recommended UCL to Use:	
		1.644 mg/kg	

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 16

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Chrysene	
Number of Samples	34
Number of Censored Data	9
Minimum	0.00175
Maximum	7.1
Mean	1.031475
Median	0.17
Standard Deviation	1.634822
Variance	2.672642
Coefficient of Variation	1.584936
Skewness	2.059003
95% UCL (Assuming Normal Data)	
Student's-t	1.505961
95% UCL (Adjusted for Skewness)	
Adjusted-CLT	1.598485
Modified-t	1.522462
95% Non-parametric UCL	
CLT	1.492683
Jackknife	NA
Standard Bootstrap	1.562893
Bootstrap-t	1.769975
Chebyshev (Mean, Std)	2.253606

Summary Statistics for ln()	
Minimum	-6.348139286
Maximum	1.96009481
Mean	-1.962586134
Standard Deviation	2.572310769
Variance	6.616782694

Goodness-of-Fit Results

Distribution Recommended	Neither
Distribution Used	Neither

Estimates Assuming Lognormal Distribution

MLE Mean	3.841278344
MLE Standard Deviation	104.9545342
MLE Median	0.140494613
MLE Coefficient of Variation	27.32281412

MVUE Estimate of Mean	2.484847307
MVUE Estimate of Std. Dev.	16.74262132
MVUE Estimate of SE	1.671736952
MVUE Coefficient of Variation	6.737887383

UCL Assuming Lognormal Distribution

95% H-UCL	31.39899445
95% Chebyshev (MVUE) UCL	9.771781921
99% Chebyshev (MVUE) UCL	19.11846352

FDEP Recommended UCL to Use:**2.254 mg/kg**

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 17

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Dibenzo(a,h)anthracene		Summary Statistics for In()	
Number of Samples	47	Minimum	-6.348139286
Number of Censored Data	22	Maximum	1.098612309
Minimum	0.00175	Mean	-2.970833295
Maximum	3	Standard Deviation	2.12505192
Mean	0.300649999	Variance	4.515845661
Median	0.037	Goodness-of-Fit Results	
Standard Deviation	0.596642404	Distribution Recommended	Neither
Variance	0.355982158	Distribution Used	Neither
Coefficient of Variation	1.984508254	Estimates Assuming Lognormal Distribution	
Skewness	3.061009884	MLE Mean	0.490215365
95% UCL (Assuming Normal Data)		MLE Standard Deviation	4.662328863
Student's-t	0.446742535	MLE Median	0.051260577
95% UCL (Adjusted for Skewness)		MLE Coefficient of Variation	9.510776685
Adjusted-CLT	0.485339701	MVUE Estimate of Mean	0.385014325
Modified-t	0.453218877	MVUE Estimate of Std. Dev.	1.641053861
95% Non-parametric UCL		MVUE Estimate of SE	0.213334269
CLT	0.443813086	MVUE Coefficient of Variation	4.262318966
Jackknife	NA	UCL Assuming Lognormal Distribution	
Standard Bootstrap	0.444841444	95% H-UCL	1.605268836
Bootstrap-t	0.590545714	95% Chebyshev (MVUE) UCL	1.314917088
Chebyshev (Mean, Std)	0.680010438	99% Chebyshev (MVUE) UCL	2.507668972
		FDEP Recommended UCL to Use:	
		0.680 mg/kg	

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 18

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Fluoranthene		Summary Statistics for In()	
Number of Samples	34	Minimum	-6.348139286
Number of Censored Data	7	Maximum	3.218875885
Minimum	0.00175	Mean	-1.238686976
Maximum	25	Standard Deviation	2.832742015
Mean	2.945242659	Variance	8.024427325
Median	0.340000004		
Standard Deviation	5.310735883		
Variance	28.20391562		
Coefficient of Variation	1.803157328		
Skewness	2.662214994		
95% UCL (Assuming Normal Data)		Goodness-of-Fit Results	
Student's-t	4.486616611	Distribution Recommended	Neither
		Distribution Used	Neither
95% UCL (Adjusted for Skewness)		Estimates Assuming Lognormal Distribution	
Adjusted-CLT	4.887872219	MLE Mean	16.01501447
Modified-t	4.555922508	MLE Standard Deviation	884.9902598
		MLE Median	0.289764436
		MLE Coefficient of Variation	55.26003496
		MVUE Estimate of Mean	9.200527191
		MVUE Estimate of Std. Dev.	85.7341059
		MVUE Estimate of SE	6.653115551
		MVUE Coefficient of Variation	9.318390579
95% Non-parametric UCL		UCL Assuming Lognormal Distribution	
CLT	4.443481922	95% H-UCL	198.499527
Jackknife	NA	95% Chebyshev (MVUE) UCL	38.20079422
Standard Bootstrap	4.306028366	99% Chebyshev (MVUE) UCL	75.39836121
Bootstrap-t	5.68805027		
Chebyshev (Mean, Std)	6.91534853		
		FDEP Recommended UCL to Use:	
		6.915 mg/kg	

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

Table C - 19

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Indeno(1,2,3-cd)pyrene		Summary Statistics for In()	
Number of Samples	47	Minimum	-6.348139286
Number of Censored Data	16	Maximum	1.791759491
Minimum	0.00175	Mean	-2.224816281
Maximum	6	Standard Deviation	2.341526875
Mean	0.712219153	Variance	5.482748108
Median	0.088		
Standard Deviation	1.293759955		
Variance	1.673814822		
Coefficient of Variation	1.816519466		
Skewness	2.791623354		
95% UCL (Assuming Normal Data)		Goodness-of-Fit Results	
Student's-t	1.029006362	Distribution Recommended	Neither
		Distribution Used	Neither
95% UCL (Adjusted for Skewness)		Estimates Assuming Lognormal Distribution	
Adjusted-CLT	1.104775906	MLE Mean	1.676247683
Modified-t	1.041813731	MLE Standard Deviation	25.94161795
		MLE Median	0.108087275
		MLE Coefficient of Variation	15.47600525
95% Non-parametric UCL		MVUE Estimate of Mean	1.276621342
CLT	1.022654176	MVUE Estimate of Std. Dev.	7.677600969
Jackknife	NA	MVUE Estimate of SE	0.741931108
Standard Bootstrap	1.031066298	MVUE Coefficient of Variation	6.014000172
Bootstrap-t	1.220676303		
Chebyshev (Mean, Std)	1.534824729		
		UCL Assuming Lognormal Distribution	
		95% H-UCL	6.891003609
		95% Chebyshev (MVUE) UCL	4.510624886
		99% Chebyshev (MVUE) UCL	8.658761978
		FDEP Recommended UCL to Use:	
		1.535 mg/kg	

PROUCL NA

Note: These estimates are valid ONLY if samples are random and representative.

TableC - 20

FDEP UCL Calculator Version 0.97

7/11/05

Summary Statistics for Phenanthrene	
Number of Samples	34
Number of Censored Data	5
Minimum	0.00175
Maximum	22
Mean	2.583045552
Median	0.270000011
Standard Deviation	4.687445884
Variance	21.97214892
Coefficient of Variation	1.814697337
Skewness	2.638275623

95% UCL (Assuming Normal Data)

Student's-t	3.943517685
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95% UCL (Adjusted for Skewness)

Adjusted-CLT	4.294152737
Modified-t	4.004138947

95% Non-parametric UCL

CLT	3.905445099
Jackknife	NA
Standard Bootstrap	3.941954374
Bootstrap-t	4.258661747
Chebyshev (Mean, Std)	6.087203503

Summary Statistics for ln()	
Minimum	-6.348139286
Maximum	3.091042519
Mean	-1.398281514
Standard Deviation	2.835205251
Variance	8.038388814

Goodness-of-Fit Results

Distribution Recommended	Lognormal
Distribution Used	Lognormal

Estimates Assuming Lognormal Distribution

MLE Mean	13.74826856
MLE Standard Deviation	765.0535717
MLE Median	0.247021102
MLE Coefficient of Variation	55.64726703

MVUE Estimate of Mean	8.127451897
MVUE Estimate of Std. Dev.	80.66092041
MVUE Estimate of SE	5.804307312
MVUE Coefficient of Variation	9.924502961

UCL Assuming Lognormal Distribution

95% H-UCL	171.1089783
95% Chebyshev (MVUE) UCL	33.42784882
99% Chebyshev (MVUE) UCL	65.87973022

FDEP Recommended UCL to Use:**6.087 mg/kg**

PROUCL 22

Note: These estimates are valid ONLY if samples are random and representative.

APPENDIX D
MONITORING WELL SHEET



Tetra Tech NUS, Inc.

WELL No.: MPT-283-MW1

MONITORING WELL SHEET

PROJECT:	<u>NS MPT</u>	DRILLING Co.:	<u>Preferred</u>	BORING No.:	<u>MW-1</u>
PROJECT No.:	<u>N4195</u>	DRILLER:	<u>Tim Colvard</u>	DATE COMPLETED:	<u>7.23.02</u>
SITE:	<u>Bld 283</u>	DRILLING METHOD:	<u>HS</u>	NORTHING:	<u> </u>
GEOLOGIST:	<u> </u>	DEV. METHOD:	<u>Cent. Pump</u>	EASTING:	<u> </u>

